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Sumy State University

# **BIOPSY-SECTIONAL COURSE**

Study guide

Recommended by Academic Council of Sumy State University

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## THEME 1

### *Drawing up of pathoanatomical documents: incision report, clinical-anatomical epicrisis, pathoanatomical diagnosis, medical certificate of death*

**Motivation:** it is necessary to draw up the appropriated pathoanatomical documents after a deceased body incision: protocol, pathanatomic epacris, medical certificate of death.

**Aim:** to study the main rules of drawing up of incision protocol, pathoanatomical diagnosis, clinical-pathoanatomical epicrisis, medical certificate of death.

**The task:** *to know* the structure of incision protocol, pathoanatomical epicrisis, medical certificate of death. *To learn* how to make pathoanatomical diagnosis based on pathogenesis principle, write out medical certificate of death and encipher the diseases according to ICD–10. *To know* how to draw up the principal pathoanatomical documents.

### Lesson equipment

1. Incision protocol.
2. Medical certificate of death.
3. ICD–10.

### Material for pre-auditorium independent work

1. Study the autopsy protocol structure.
2. Study the medical certificate of death structure.

### Questions for self-control of the theoretical material of the lesson

1. Concept of diagnosis formulation.
2. Structure and principle of clinical and pathoanatomical diagnosis.
3. Primary disease concept.
4. Complications of primary disease concept.
5. Concurrent diseases concept.

6. Combined primary disease concept.
7. Competitive diseases concept.
8. Conception of united and background disease.
9. Direct cause of death.
10. International classification and nomenclature of diseases.
11. The peculiarities of diagnosis formulating in the presence of surgical intervention, medical error and incorrect manipulation.
12. Compression of clinical and pathoanatomical diagnoses.
13. The rules of drawing up of the medical certificate of death.
14. Concept of “final”, “previous” for substitution of previous medical certificate of death.
15. Filling up peculiarities of the points of the first part with singling out the subpoints a, b, c and filling up the point 8 of the second part.
16. The peculiarities of filling up the medical certificate of death in child practice under the prenatal pathology.
17. The peculiarities of filling up the medical certificate of death in obstetric-gynecologic practice.

### **Material for pre-auditorium work**

#### ***Compressed exposition of theoretical and instructional material***

##### **I. Order and methods of autopsy of the dead in stationary of the medical establishments.**

After ascertainment of fact of biological death the doctor of permanent establishments should leave a body of the deceased in the ward for two hours. On the hip one write the last name, name, patronymic, date and time of death, dissection with brilliant green. Usually they fasten rubbered tape to the hand in which passport information is marked on. The last method is more expedient in those medical institutions in which single cases of death are observed.

At bearing-out of the body and its next examination it is necessary to follow all moral-ethical and professional requirements. Ethical requirement is keeping medical secret of everything that is determined at dissection. One should also remember, that the deceased, the body of which serves for science, had relatives and close people. Professor V. Gruberg, for example, required from students and those who work in the operating room, to take off hats, “as wearing of hats does not answer dignity of room”. It is desirable to caution junior medical workers, that cadaveric hypostasis can disfigure face at placing the body with the up back. One shouldn't forget that after ascertainment of fact of biological death it is necessary to close eyes, tie up a lower jaw, cover body with clean sheet, etc. At the same time the body of deceased with fully filled case history of patient is delivered into the morgue.

Before necropsy of deceased the dissector examines all information about life, diseases and death of patient, which is possible to know from case history of patient, finds out in treating doctor absent facts which tell about course of disease and dying. Sometimes it is expedient to specify some information even for relatives, especially in the cases of brief stay of patient in permanent establishment. The laboratory, instrumental and other methods of examination, methods of treatment, doses of drugs, used by patient, are attentively examined, diagnoses are written on the title sheet of medical card, and also all working diagnoses, fixed in diaries. The study of these circumstances pursues another important purpose – absence or ascertainment of presence of medical-legal aspect.

It is desirable that the dissector having learnt all the necessary information was given to set diagnosis which can not coincide with a diagnosis of treating doctor. By this measure, P. Kalitievskiy specifies, that the dissector to a certain extent puts itself at position of treating doctor, that it is especially

important for the mutual understanding between the pathologist and the clinician.

*There is a certain algorithm at carrying out the pathoanatomical autopsy:*

1. To provide autopsy with daily illumination, as lamplight changes colour reproduction.
2. To dress smock rubbered apron and sleeve protectors on him. They recommend utilizing anatomic gauntlets. It will prevent communicable diseases, and also penetration of ptomaine, through the possible defects of skin.
3. External review of body of the deceased. They set gender, constitution, feed, condition of covers, presence of signs of death, rash, hemorrhages, wounds, ulcers, edema, etc. It is desirable that treating doctor confirm passport information of the deceased.
4. Basic sectional cut. It is necessary to watch, that it would not pass through after operational cuts, scars and other defects.
5. Detailed examination of cavities with finding out the features of location and location related one to other organs, presence of commissures, exudate, transudate, extraneous bodies, etc.
6. Removal from the cavities of organs and their examination (sizes, weight, colour, consistency, form, etc.) with the simultaneous taking necropsy, and also depending on the tasks of the dissector, to material for bacteriological, serologic, biochemical and virology examination. Sometimes X-ray examination of bones is conducted.
7. Short result with formulation of pathoanatomical diagnosis, reason of death, presence of possible divergences, between clinical and pathoanatomical diagnoses, finding out the additional questions which interest the clinicians.
8. Toilet of the dead body.
9. Recording of the autopsy.

At the first time Virkhov described method of autopsy in details. Later it was perfected by Kiari, Letul, O. Abrikosov, G. Shore. Methods of last two scientists are the most widespread in prosector practice.

O. Abrikosov suggests to probe organs on cavities. First of all it is recommended to remove the organs of neck and pectoral cavity in a complex. Then – separately intestine, liver, stomach and duodenum, as one complex, urinary ways and privy parts also as the other complex.

G. Shore offered the method of full evisceration of organs – removal of organs of neck, breast, abdominal cavities and small pelvis as the unique continuous complex. At examination the organs are not also separated one from the other, that keep anatomic-physiological integrity. This method is comfortable enough at autopsy of the deceased bodies of the persons who died after operational aggressions. In such cases it is expedient to examine the area of the operating field, in details namely, the state of surgical stitches, vessels, presence and character of exudate, rightness of implementation of operation.

### **Recording the autopsy report**

Recording the autopsy is carried out in pathoanatomical document – chart of pathoanatomical examination. It consists of such parts: passport, descriptive, pathoanatomical diagnosis and clinical-pathoanatomical epicrisis. In passport part there are last name, name, patronymic of deceased, his age, address, number of case history, profession and speciality, entering in hospital and death diagnoses. In autopsy protocol they bring in also brief information from case history about the features of etiology, clinical symptoms, instrumental and laboratory indexes, methods of treatment. It is desirable to specify speciality, but not “pensionary”, and also characteristic signs, at which diagnosis, marking in a clinic can be put.

The order of filling the descriptive part is different. Nowadays tendency to its simplification is observed avoiding the classic form of exposition. The use of general terms, for example, “aterosclerosis”, “adenoma”, “pneumosclerosis” and others like that in place of description of pathomorphological symptoms, or comparison of size of pathological changes with such objects, as a greek nut, pea, egg, in place of the exact pointing of sizes is forbidden. It should be remembered that pathoanatomical description is judicial document, which is why even insignificant changes that in opinion of pathologist are not notable, at subsequent examination can have main value. Even in the purpose the autopsy charts, in which character of pathological changes is only mentioned. Is applied such way often causes mistakes which are difficult to correct. Photographing and record on videotape are also additional methods of report. The basic requirement which is produced to descriptive part of protocol is sufficient plenitude and clarity, which are combined, on possibility, with the conciseness of exposition.

*In pathoanatomical practice such norms of registration of pathoanatomical changes are widely used:*

- ◆ after the anatomic systems of organism;
- ◆ after the course of providing the section;
- ◆ after the preliminary certain place of defeat of the system, related to the features of case, and in future – after course of examination of other systems.

Always it`s recommended to begin descriptive part from external review of body, registration of feed, state, skin covers, mucus and eyes, hair, nails, to character of edema, etc. After these signs it is possible to assume the presence of any pathology. It is desirable to conduct the record of protocol directly after the autopsy, not delaying to the next day, the best of all under dictation after course of implementation of section or with the use of dictaphone.

Formulation of pathoanatomical diagnosis follows the descriptive part of protocol on the basis of macroscopic diagnostics and if necessary with the use of express methods. It is desirable to provide formulation of diagnosis in presence of treating doctors before dressing of body.

### **Structure and construction of pathoanatomical diagnosis**

**Diagnosis** (grec. diagnosis – recognition) is a medical conclusion about the pathological state of patient's health, presence of disease (trauma) or about the reason of death, shown in terms, provided by International classification of diseases, traumas and reasons of death. Its determination is the last stage of analysis of data of anamnesis, clinic, laboratory-instrumental examination, results, macro- and microscopic morphological examination.

*According to the stages of diagnostic process variants they distinguish:*

- ◆ diagnosis at the protracted supervision of the health state by district or domestic doctors, and also at carrying out the prophylactic supervisions;
- ◆ diagnosis at admission to medical establishment;
- ◆ clinical diagnosis concerning conducted treatment;
- ◆ final clinical diagnosis which is set by treating doctor at discharge of the patient from permanent establishment or in the case of death;
- ◆ pathoanatomical (forensic-medical) diagnosis which determines pathologist (forensic pathologist) on the basis of examination of sectional or biopsy material.

Modern clinical and pathoanatomical diagnosis must show nosology, etiology, pathogenesis, morphofunctional symptoms and prognosis of disease. Pathoanatomical diagnosis must include all stages of informative process: supervision, morphofunctional description of pathological changes,

determination of nosology belonging of disease (formal diagnosis), determination of etiology, relations hip, and sequence of morphological symptoms origin with the information of anamnesis, clinical symptoms and complex of results of in-life laboratory, instrumental and morphological examinations (clinical diagnosis of the patient or the deceased), and also determination of prognosis in the cases of determination of the diagnosis on the basis of biopsy.

One should remember that every nosological unit contains both the reason and the possible consequence, which are realized only in certain conditions. The reason and consequence are connected with possibility and reality, chance and authenticity. Thus connection of reason with chance includes variety of consequences at the same reason, and possibility of transition of reason into consequence is determined by chance.

*It is necessary to take into consideration at registration of pathoanatomical diagnosis, the next:*

- ◆ one reason can lead to one consequence;
- ◆ one reason can lead to many consequences;
- ◆ one consequence can be caused by many reasons;
- ◆ reason and consequence(s) can cause death of patient;
- ◆ reason and consequence(s) can change the symptoms of disease (pathomorphism).

Treating doctors and pathologists often variously interpret and understand the same phenomena, their place among other processes revealed in patient both from the point of view of reason and result, their significance in course of diseases, and from diagnostic positions. Clinicians often set as the basic nosological unit that disease or complications on which their treatment, or reanimation measures were directed. Exactly it results the common principles of interpretation and registration of pathoanatomical processes, in other case the joint compatible work of treating doctors and pathologists will

be ineffective and will not bring those value for clinical practice and postgraduate education of doctor, which must be its result.

Final diagnosis is the result of difficult process of comparison and comprehension of numerous facts, collected by doctor in the process of treatment, in the basis of which the laws of formal and dialectical logic lie. Formulation of the diagnosis is not a formal stage, but conclusion doctor is thinking in a verbal form. So, there must be clear principles of its formulation, which are clear both for treating doctor and pathologist, and at statistical analysis of death rate of population.

*Clinical and pathoanatomical diagnoses consist of 3 sections:*

1. The underlying disease
2. Complication of underlying disease
3. Accompanying diseases.

That nosological form which in itself or through pathogenetically connected complications caused functional disorders which stipulated clinical picture in patient and caused death. For example, stomach ulcer, lung cancer, croupous pneumonia, rheumatism, etc. Thus it is not necessary to mention symptoms and syndromes which substitute nosological unit.

It is expedient to use the term “disease”. In this situation it is used for denotation of disease of a man, determining for nosological unit and generalized concept of disease as the biological and social phenomenon. All existing definitions do not satisfy doctors both in theory and practically.

The most useful of the known definitions of the disease belongs to R. Virchow: “Life at abnormal conditions”. Yu. Konheim understood disease as deviation from a normal vital process, which is conditioned by interaction of external and internal conditions and reflex processes of organism. It is

possible to agree with A. Strukov's determination: "It is a process of vital activity of the whole organism, the process of fight for a survival", also with I. Davidovskiy and V. Silvestrov's definitions: "It is adaptation of organism, which is characterized by specific forms and levels of adaptational acts". On the whole, summarizing these determinations it is possible to consider, that disease is a disorder of vital functions of organism under influence of factors of internal and external environment which is characterized by limitation of adaptation with simultaneous mobilization of compensatory-adaptational mechanisms. So, under disease we can understand breakdown of compensatory-adaptational processes, reactions of organism on damage. For example, hypertrophy of heart as compensatory process at hypertensive disease is a display of fight of body for a survival. Next to it, dilatation of its cavities – is a display of disorder of compensation.

Every damage, adaptational and compensatory processes always have disfunctional expression, sometimes of new quality, not characteristic for the healthy organism. Such signs, which can be found out by the clinical and morphological methods of examination, and also can be used for diagnostics and prognosis of disease, are called symptoms. They are divided by availability and way of exposure on obvious and hidden, by the terms of expression – on early and late, by a diagnostic meaning from the point of view of pathogenetic interpretation – on nonspecific, specific and pathognomic. For example, Ponce's rheumatism is the nonspecific inflammatory reaction of synovial membrane in a patient with tuberculosis, the presence of tubercular granuloma is the specific sign of tuberculosis, and endocarditis is pathognomic sign of rheumatism.

The multitude of symptoms on the basis of their connection by etiology and pathogenesis or only by pathogenesis at the undetermined etiology of disease makes

clinical expression of nosological character of syndrome. For example, hemorrhagic syndrome can be at acute leucosis, haemophilia, cirrhosis of liver, avitaminosis C, urinary syndrome is observed at glomerulo- and tubulopathy, urolithiasis, hypertensive – at essential hypertension, diseases of kidneys, hormone productive tumours, etc. Syndrome is a part of nosology, that's why in clinical conditions they use syndrome approach and syndrome diagnosis is the stage to setting the nosologic diagnosis. In pathological anatomy such syndromes are general pathologic processes which help to determine pathogenesis of diseases; the most often they appear as symptoms or complications of disease. There are cases, when syndrome comes on the first plan in clinical and morphological picture as display of complication. Exactly it caused violation of pathogenetic principle of concept determination of the basic disease and construction of diagnosis and also the separation of new nosologies. For example, cardiac infarction is the cardiac form of expression of atherosclerosis or hypertensive disease. The reason for it is the durable ischemia, caused by spasm or by the thrombosis of arteries. But taking into account the social and clinical significance of cardiac infarction, the new nosology – ischemic disease of heart is distinguished. In such cases heart attack is considered to be underlying disease.

There are rare cases in practice of pathologist, when signs of one disease, for example, of typhoid are present. Mainly at section they find out a few pathological states.

*In such cases for determination of underlying disease it is recommended to use such principles:*

- ◆ to give advantage to the pathological condition which can be considered as principal reason of death;
- ◆ to give advantage to more severe condition by character and consequences;

◆ if it is impossible to give advantage by the first or second principle, then the condition which is the most reliable by frequency, is taken into consideration.

*In our view, the most expedient method of determination of basic disease is grounded on the basis of such principles:*

1. What pathological condition is the direct reason of death?
2. Which pathogenetically conditioned process caused its development?
3. Which symptoms of nosology is the pathological process most inherent to?

The last is a nosology unit. For example, asphyxia is caused by thrombosis of bronchial tubes by blood; bleeding from eroded vessel in the result of caseous necrosis of wall; cavernous tuberculosis.

In number of cases it is impossible to distinguish one nosology unit from a few diseases which would in itself entail death. Then one uses the so-called combined underlying disease.

*Nosological forms which it includes can be combined in such variants:*

- ◆ competitive diseases;
- ◆ united diseases;
- ◆ combination of basic and background diseases.

Under competitive diseases are united two nosologies which in itself and through complications could lead to death. For example, combined underlying disease: ischemic heart disease – initially appeared transmural cardiac infarction of front-lateral wall of the left heart ventricle and cerebrovascular disease – hemorrhage in the left hemisphere of cerebrum. Complications of the underlying disease: edema of lungs, edema-swelling of substance of cerebrum with wedging in the large cervical foramen.

In this case edema of lungs as a display of left-ventricle insufficiency, edema-swelling of substance of cerebrum with

wedging in the large cervical foramen, caused by hemorrhage in a cerebrum, in itself could lead to death. Except it, combining by time of origin they acutely worsened the condition of patient and brought closer time of death.

Unlike competitive diseases, combined diseases, each separately, is not lethal, but at their simultaneous development cause lethal outcome.

The example of combined diseases can be simultaneous presence in patient of postinfarction cardio sclerosis and chronic nonspecific disease of lungs.

Each of these diseases can cause chronic cardiac insufficiency, however at their combination terminal symptoms come quicker.

*Necessary condition of diseases combination is:*

- ◆ coincidence in time of two diseases which gives a new qualitative display of pathological process;
- ◆ general for these nosologies complications.

Rheumatic disease and chronic form of the secondary tuberculosis can be an example. They are different in etiology and pathogenesis of disease, but common for them can be complication – amyloidosis of kidneys, course of which is finished with uraemia.

Background disease after A.V. Smolyanskiy is nosology, which has substantial role in origin and unfavorable course of pathologic process. For example, pyelonephritis or tuberculosis on background of diabetes mellitus, tuberculosis because of drug addiction or alcoholism. One should bear in mind that at diagnosing background nosology is that disease at breaking of which it is possible to prevent lethal outcome of underlying disease or, opposite, the presence of which worsens the clinical course and brings closer the time of death. Usually it can be represented in a diagnosis or epicrisis by terms “on background of”, “at presence of”. For example, acute purulent pyelonephritis on background of diabetes

mellitus or viral hepatitis on background of chronic toxicomania (alcoholism).

Under complication of underlying disease it follow to understand those pathologic processes which worsened clinical course of underlying disease and are pathogenetically related with it. For example, diffuse purulent peritonitis and at the perforated stomach ulcer or festering leptomeningitis at acute pneumonia and etc. Sometimes one complication can cause another by time of development. For example, ulcerophlegmonic appendicitis, pileflebous abscesses of liver – icterus peritonitis. In such cases it is desirable to specify all complications in the sequence of their origin in pathoanatomical diagnosis, grounding on the given morphology, pathogenesis and clinical picture.

Accompanying disease is considered a nosological unit, which is not etiologically and pathogenetically connected with underlying disease. Processes which have substantial pathological symptoms and influence on resistance of organism are written down in this part.

Thus, registration of pathoanatomical diagnosis is grounded on the basis of nosological principle taking into account of etiology, pathogenesis and anatomic localization of processes with maximal using the headings of ICD OF WHO. Adhering to the last principle, it is not always possible to build a pathoanatomical diagnosis on pathogenetic principle. Thus, according to ICD OF WHO, as underlying disease it is suggested to propose cardiac and cerebral clinical-morphological forms of atherosclerosis and hypertensive disease (ischemic heart disease, cerebrovascular disease). It relates to tubercular meningitis. At pathogenesis this pathological process is a complication, however, in accordance with ICD OF WHO, it grows as underlying disease (A.7.0 – tubercular meningitis).

It is known that the number of medical measures can be complicated by severe, sometimes incompatible with life pathological processes.

*According to ICD OF WHO to complications which arose up in the result of therapeutic and surgical interventions (U40 – U84) are referred:*

- complications, connected with the use of medical instruments and devices;
- unforeseen unfavourable reactions which appeared at insertion of medications correspondingly in accordance with setting to prescription in a therapeutic or prophylactic dose;
- by unexpected harm which was inflicted to the patient during surgical and therapeutic intervention;
- surgical and therapeutic procedures which are the reason of patient's abnormal reaction;
- remote complication without mention about unintentionally harm-doing during the procedure.

In those cases, when lethal complications come after the grounded and correctly performed medical measures, they are considered to be lethal complications of underlying disease concerning which these measures were accepted. For example: underlying disease – pemphigus (L. 10), treated with corticosteroids in therapeutic doses.

Complication of underlying disease: acute steroid perforative stomach ulcer, diffuse fibrinous-purulent peritonitis.

Next to it, number of iatrogenic diseases need to be interpreted as basic disease and the primary cause of death. They include:

1. Unfavourable results of medical procedures which are performed at misdiagnosis.
2. Wrong performed medical measure which caused death. For example, complication of catheterization of subclavian vein,

bronchoscopy, infusion therapy. In this case it is suggested to formulate a pathoanatomical diagnosis the next way:

*Underlying disease:* perforation of wall of cardiac right ventricle with intravascular end of catheter at puncture and catheterization of right subclavian vein (date).

*Complication of underlying disease:* pericardium tamponade with infusional fluid and blood; hydro-hemopericardium, edema of lungs, edema of cerebrum.

*Accompanying disease:* parainfluenza of the second serotype (by results of posthumous immune fluorescence examination).

3. Complication of therapy with development of dysbacteriosis, endo- and exogenic superinfection.
4. Lethal allergic reactions and other complications after insertion of medicinal preparations without the previous drawing allergologic samples or ignoring this information.
5. Incompatible blood transfusion.
6. Death, caused by complication of manipulation, performed with a diagnostic purpose, and also vaccination.

### **Clinical-pathoanatomical epicrisis**

Clinical-pathoanatomic epicrisis is the most difficult part of autopsy protocol for formulation. It is a synthesis of clinical course with information, received at morphological examination, determination of etiology, pathogenesis, morphogenesis and mechanism of death. Here the dissector writes his opinion about the feature of this case.

*It is necessary to represent such questions in clinical-pathoanatomic epicrisis:*

1. Grounding of diagnosis: underlying disease, complications, accompanying diseases.
2. Finding out the stages of tanatogenesis and ascertainment of primary and direct reasons of death.

3. Analysis of symptoms of pathomorphosis (influence of medical measures on clinical-morphological symptoms of disease).
4. Comparison of diagnoses is after headings (underlying disease, its complication and accompanying diseases) with pointing the reason of divergence of diagnoses.
5. Finding out timeliness of diagnostics and hospitalization with the estimation of influence of this factor on medical process and consequence of disease.

There is no common rule for writing the clinical-pathoanatomic epicrisis, what is caused by possibility of other approach in each case. In other words it is the subjective look of dissector to disease with the use of morphological analysis. However, taking into account, that the major part of epicrisis is dedicated to the analysis of clinical picture and treatment, to possibilities of early before-hospital and hospital diagnostics, to the use of necessary diagnostic measures, timeliness of hospitalization, movement of diagnostic process, expediency of operative intervention, description of therapy, reanimation measures, these basic questions must be decided collectively, with the obligatory presence of treating doctors, on the meeting of doctor-control committee, clinical-pathoanatomical conference. Only in that way it is possible to represent the miscalculations of medical thought and organizations of medical-phylactic work in every concrete case.

### **Medical certificate of death**

Having formulated the pathoanatomical diagnosis, the pathologist proceeds to registration the medical certificate of death. It should be mentioned, that the basic condition of the correct filling is the correctly composed diagnosis and competent using ICD OF WHO.

ICD OF WHO (International classification of diseases) makes the unique code list of the three-digit headings, each of

which can part on four-dimensional subheadings by number to ten. In a place of the especially digital system of code in previous editions in tenth revision number code is used with a letter – first symbol and number – second, third and fourth symbols. Fourth symbol is located after a decimal point. Thus, possible numbers of codes are contained in a range from AOO.O to Z99.9. After ICD OF WHO X-revision, all diseases and systems are divided into 21 classes, to every class corresponds the certain letter of the Roman alphabet.

*Order of filling the medical certificate of death:*

1. Medical certificates of death are filled with a pen, with legible handwriting.
2. All points of certificate must be filled. In case of absence of any information it is necessary to write down there “no information”, “it is not set”. On medical certificate of death and their parts, they fill in the number of ascertainment after the State register of current statistical units of Ukraine, and through a fraction – serial number of medical certificate of death.
3. Reason of death is written down in two parts of 11 point of medical certificate of death.

**First part of it is divided into three lines (I a, b, c).**

**Etiologically and pathogenetically connected diseases are written there:**

- a – direct reason of death, that is disease, syndrome or symptom, which are lethal complication of underlying disease;
- b – the transient conditions which are pathogenetically related to direct reason of death and underlying disease;
- c – basic primary disease which stipulated direct reason of death. Basic primary disease which is written down in the line of I b is encoded with one of codes of ICD OF WHO.

In the second part of 11 point doctor must mark other diseases, which negatively influenced on course of underlying

disease, but casually aren't connected with disease or its complication which directly is reason of death. For example:

- 1) I. a. Acute posthemorrhagic anaemia.  
b. Bleeding from the varicose widened veins of gullet.  
c. Combined cirrhosis of liver.  
II. Rheumatoid arthritis, phase of remission. It is necessary to encode the cirrhosis of liver – K 74.6.
- 2) I. a. Chronic renal insufficiency.  
b. Subacute glomerulonephritis.  
c. Scarlatina.  
II. Lymphohypoplastic anomaly of constitution.  
Encode scarlatina – A 38.
- 3) I. a. Hepatic-renal insufficiency.  
b. Mechanical icterus.  
c. Cancer of head of pancreas.  
II. IHD. Postinfarction cardiosclerosis.  
Encode cancer of head of pancreas – S 25.0.

At filling the point 11 of medical certificate of death on dying woman at childbirth or woman recently confined they recommend to do a record in such order:

In the case of complications of pregnancy, birth, or postnatal period, and also as a result of other intervention, wrong delivery, information about reason of death is written down in the first part of generally accepted chart in lines I a, b, c.

For example:

- 1) I. a. Acute respiratory-cardiac insufficiency.  
b. -----  
c. Embolism by amniotic fluid.  
II. Pregnancy is the second, births are the first, urgent.  
To encode embolism by amniotic fluid – 088.1.
- 2) I. a. Acute posthemorrhagic anaemia.  
b. Uterine bleeding.  
c. Pregnancy is the first, spontaneous abortion.  
II. Endemic multinodular goitre.

To encode spontaneous abortion – 003.

In the case of death of pregnant woman or woman recently confined in the result of disease, which existed before or arose up in the period of pregnancy and is unconnected with direct obstetric reason, but burdened with the physiological influence of pregnancy or accident, information about reason of death is written down in lines I a, b, c but here in part II the record about pregnancy and its time must be done.

For example:

- 1) I. a. Chronic right ventricle cardiac insufficiency.
- b. Dilatation of right ventricle of heart.
- c. Rheumatism, active phase, stenosis of mitral opening.
- II. Pregnancy is the second, 22 weeks.

To encode rheumatism with the defect of mitral valve – I05.9.

- 2) I. a. Cardiopulmonal shock.
- b. Pulmonary embolism.
- c. Cystoma of the left ovary with torsion of pedicle.
- II. Pregnancy is the first, 32 weeks.

To encode Cystoma of ovary – D27.

In part II one makes a record: "Postnatal period .... day", in all cases of death of women in post-natal period within the limits of 42 days after birth.

For example:

- 1) I. a. Purulent meningitis.
- b. Abscess formation in lungs.
- c. Croupous pneumonia.
- II Post-natal period, 28 day.

To encode croupous pneumonia – J 15.2.

In cases of death from traumas in the point 11 they specify the localization and character of trauma.

For example:

- 1) I. a. Subdural hematoma.
- b. Rupture of the tentorium of cerebellum.

c. Fracture of base of skull.

II. Diabetes mellitus.

To encode fracture of base of skull – S 02.1.

2) I. a. Posthemorrhagic shock.

b. Rupture of femoral artery.

c. Open fracture of middle third of right hip.

II. To encode open fracture of right hip – S 78.81.

*In the point 12 it is necessary to specify clearly:*

I a – date of trauma: year, month, day;

b – at accidents, unconnected with a work, they specify the type of trauma (everyday, street, traffic, etc.);

c – place and circumstances of trauma.

In the point 13 information is given only on the basis of statement of the deceased and is given out in accordance with the Law of Ukraine “About the status and social protection of citizens injured with Chernobyl catastrophic crash”.

In the point 14 one writes down the name of medical establishment, date of giving out the certificate, signature of doctor who gave out the medical certificate of death, certified with the seal of establishment.

A record about giving out the medical certificate of death (№ of its record, date, reason of death) must be done in proper medical documents: case history of the patient (form 003/r), case history of births (form № 096/c), case history of ambulatory patient (form № 025/r).

### **Addition № 22**

The main diseases are written completely in the pathoanatomical diagnosis as well as all accompanying diseases and their complications.

The disease which is directly or through complication closely bound with it is considered to be the main disease.

Pathological processes that are directly pathogenetic and which are bound with the main disease, pertain to the complications.

The main nosological forms which are of autopsy and clinical and aren't bound directly with the main disease are considered to be the accompanying diseases.

#### **Pathoanatomical diagnosis**

The main disease: ulcerous disease of the stomach with ulcer on small curvature.

The complications of the main disease: perforation of ulcer, diffusive fibrinous-purulent peritonitis.

The accompanying diseases: adenoma of prostate, chronic cystitis, small polycystosis of kidneys.

#### **Pathoanatomical diagnosis**

The main disease: adenocarcinoma of the left mammal gland with metastases in lungs, pleura, hepar, ovaries.

The complications of the main disease: cachexy.

The accompanying diseases: ascariasis.

#### **Addition № 23**

##### **Physician's certificate of death**

In the part "The cause of death" one writes about death condition. It is necessary to distinguish two conceptions:

In the line "1a." one writes the direct cause of death.

In the line "1b." one writes process which development brings to the direct cause of the death.

In the line "1c." one writes the main cause of the death which is the main disease.

In the line "II" one writes accompanying diseases that promote approach to death.

### **3. Algorithm of auditorium work**

#### ***1. To give answers to situational tasks:***

1. The patient Ia., 70-year-old was brought to the hospital with stomach cancer. On transportation to the X-ray department the

patient suddenly died. At the section, stomach cancer and numerous metastases of myocardial infarction, myocardium rupture, hemopericardium were revealed.

Which disease should be considered basic one and which is accompanying? Write out medical certificate of death.

2. At the section of the dead man, the signs of uremia on the background of chronic glomerulonephritis, chronic bronchitis with pulmonary emphysema with reticular diffuse of pneumocerosis, generalized atherosclerosis of all arteries, lower lip cancer of the initial stage of invasive growth were revealed.

Which diseases are underlying, accompanying ones?

3. After the section of the dead P., 80-year-old, the following diagnosis was made: basic disease – general atherosclerosis, atherosclerosis of aorta, brain and coronary vessels; cardiosclerosis, hypertrophy of the left ventricle (1.6 cm). Complications of basic disease: gray softening of brain in the left frontal part.

Accompanying diseases: chronic bronchitis. What is pathologist's error in making pathoanatomical diagnosis?

4. During the autopsy, hypertrophy of the left heart ventricle, primarily contracted kidney, hemorrhage into the right temporal region of the brain, brain edema, adenoma of prostate gland were revealed. Formulate the pathoanatomical diagnosis. Write out medical certificate of death.

5. During the section, sclerosis of heart valves, polypous ulcerous valvulitis of the aortic valve with its perforation, infarctions of spleen, kidneys, chronic bronchitis, atherosclerosis of aorta were revealed. Formulate the pathoanatomical diagnosis.

6. During the autopsy sclerosis, deformation and inosculation of the mitral valve, hypertrophy of the right auricle and the right heart ventricle, brown induration of lungs, kidneys, spleen, mace liver, ascites, hydrothorax, anasarca, chronic

stomach ulcer, atherosclerosis of aorta. Formulate the pathoanatomical diagnosis, write out medical certificate of death.

7. During the autopsy of the dead the left heart ventricle hypertrophy, secondary contracted kidney, fibrinogenous pericarditis, ion microfocal bronchopneumonia, edema of lungs, serous tracheitis, serous hemorrhagic enteritis, stones in gall bladderinosculation in abdominal cavity. Formulate the pathoanatomical diagnosis. Write out medical certificate of death.

8. During the autopsy there were revealed: presence of blood in the stomach cavity, small intestine, pallor of tissues of internals, tubercular cavity in the region of the right lung apex, the right heart ventricle hypertrophy, decrease of the liver size with its deformation, large regions of connective tissue and small nodules of regeneration, enlargement of esophagus veins, atherosclerosis of aorta. Formulate the pathoanatomical diagnosis. Write out medical certificate of death.

9. During the autopsy the revealed the following: gangrenous appendicitis because of which the operation – appendectomy was performed; hemorrhagic infiltration of pancreas, edema of lungs, fracture of the 4-5-6-7-ribs on the right side and the 3-4 ribs on the left side, chronic bronchitis, infarction of spleen, extensive through-and through myocardial infarction of pestered wall of the left ventricle posterior wall, parietal thrombus of the heart left auricle, thrombosis of the right renal artery and mesenteric vessels of appendix. Formulate the pathoanatomical diagnosis. Write out medical certificate of death.

10. During the section atherosclerosis of coronary vessels, atherosclerotic cardiosclerosis, of abdominal department of aorta and mesenteric arteries, thrombosis of superior mesenteric artery, gangrene of small intestine, generalized peritonitis, adipose dystrophy of liver, granular dystrophy of

epithelium of canaliculated kidney. Formulate the pathoanatomical diagnosis. Write out medical certificate of death.

11. During the autopsy of the dead M., 47-year-old, the following morphologic changes were revealed: fibrinogenous hemorrhagic tracheobronchitis, colitis, fibrinogenous pericarditis, hyperplasia of spleen, edema of lungs, brain, impression of cerebellum tonsils into great occipital foramen, calculi in gall bladder, acute diffuse glomerulonephritis, atherosclerosis of aorta and coronary vessels, atherosclerotic cardiosclerosis. Formulate the pathoanatomical diagnosis. Write out medical certificate of death.

12. During the section of the dead L., 42-year-old, the pathologist revealed the following clinical picture: erosive gastritis, ascites, bilateral stagnant plethora of kidneys, brown induration of lungs, hemorrhagic infarction of lower part of the right lung, mace cirrhosis of liver, atherosclerotic cardiosclerosis, hypertrophy of walls of the right and the left heart ventricles with dilatation of their cavities, rheumatic heart disease; sclerosis of mitral and aortic valves with their insufficiency and stenosis atrioventricular and aortic foramina, fibrinogenous warts on valves. Formulate the pathanatomical diagnosis. Write out medical certificate of death.

13. During the section of the dead K., 52-year-old, who was treated in the gynecological department, the following morphological changes were revealed: atherosclerosis of aorta, infantile uterus, atrophy and sclerosis of ovaries and uterine tubes, lateral hydronephrosis with vacant increase of adipose cellular tissue around kidneys, chronic bronchitis, diffuse pneumosclerosis, emphysema of lungs, chronic cor pulmonale, general venous plethora, mace liver, red pleura obstructive thrombi of left shin veins, thromboembolism of the truncus encephali of pulmonary artery, infarction of lungs in lower

parts. Formulate the pathoanatomical diagnosis. Write out medical certificate of death.

14. After the section of the dead N., 58-year-old, the following diagnosis was made: atherosclerosis of aorta, brain and heart vessels. Complications of the basic disease: moderate left ventricle hypertrophy, fibrinogenous pericarditis, edema of the soft cerebral membrane, brain substance. Accompanying diseases: chronic diffuse glomerulonephritis with transformation into secondary contracted kidney, gastritis, fibrinogenous colitis, fibrinogenous pleuritis, ascites, emaciation, rheumatoid polyarthritis with deformation of hands and feet, subserous uterine fibromyoma. Formulate the pathoanatomical diagnosis. Write out medical certificate of death.

15. After the section of the dead K., 24-year-old, the following diagnosis was made: the basic disease – ischemic heart disease, atherosclerosis of coronary vessels, atherosclerotic cardiosclerosis, nidi of ischemia and dystrophy of cardiac hystiocyte, subperpicardial hemorrhages. Complications of basic disease: edema of lungs, hemorrhages in the region of pancreas hemorrhagic tail, trachea, bronchitis, serous hemorrhagic enteritis. Accompanying diseases: ulcer-purification atherosclerosis of aorta, parietal aorta thrombi, chronic bronchitis, cystic disease of kidneys. Point out mistakes made in formulation of the pathoanatomical diagnosis. Formulate correct diagnosis. Write out medical certificate of death.

16. After the section of the dead V., 51-year-old, the following diagnosis was made: basic disease – diffused sclerosis (cerebral form), edema and bulge of soft cerebral membrane. Complications of principal disease: dystrophic changes in parenchymatous organs, cachexy. Accompanying diseases: duplex chronic fibrous-cavernous tuberculosis of lungs with acinar-nodose dissemination, lipoidisis of aorta. Analyse this

diagnosis, point out made mistakes. Formulate the pathoanatomical diagnosis. Write out medical certificate of death.

17. After the section of the dead L., 31-year-old, the following diagnosis was made: basic disease – subserous fibromyoma of uterus, spleen hyperplasia. Complications of basic disease: extrauterine pregnancy, rupture of ampler part of the right uterine tube, internal hemorrhage, anemia of internals, edema of lungs. Point out the mistake made in formulation of the diagnosis. Formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

18. During the bronchoscopy the wall of the right main bronchus and parietal pleura of the patient was injured. It caused pneumothorax on the right side and mediastinal emphysema. For elimination of the above-mentioned pathological changes the operation with drainage of pleural cavity, suturing of main right bronchus rupture, right lateral bilobectomy was performed. After the operation the double aspiration pneumonia, brain edema, impression of tonsils into great occipital foramen appeared. Formulate the pathoanatomical diagnosis. Write out medical certificate of death.

19. During the autopsy of the dead K., 36-year-old, the following pathology was revealed: hypertonic (hypertrophy of the left heart ventricle), chronic alcoholism, brain atrophy, moderate internal hydrocephalus, delirium tremens, alexia, general venous plethora, considerable dystrophic changes in parenchymatous organs, left lateral lobar pneumonia (croupous pneumonia) with fibrous pleurisy.

Formulate the correct pathoanatomical diagnosis, write out medical certificate of death.

20. During the autopsy of the dead M., 48-year-old, the following changes were revealed: pneumosclerosis, emphysema of lungs, atherosclerotic nephrosclerosis, ischemic

heart disease, stenotic atherosclerosis of coronary arteries, thrombosis of the left coronary artery, stratified rupture of myocardium, pericardium tamponade. Formulate the pathoanatomical diagnosis. Write out medical death certificate.

21. On 25.10.93 to the patient K., 38-year-old, appendectomy was performed in connection with phlegmonic gangrenous appendicitis. On the third day after the operation the sutures of stump appendix parted, fibrinous purulent peritonitis, hypostatic pneumonia and adipose liver dystrophy appeared. At the section yet besides the above-mentioned pathology, ulcerous-petrification atherosclerosis of aorta was revealed. Formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

22. In patient S., 50-year-old, who was ill with cancer of head and body of pancreas, obstructive jaundice appeared in the result of common bile duct, squeezing and purulent angiocholitis with abscess formation.

On 16.03.93 the operation with gallbladder drainage was performed. During the section the purulent bilious peritonitis, subdiaphragmatic abscess, melting of tendinous centre of right cupola diaphragm, right lateral pyothorax with compressive atelectasis of the right lung, parenchymatous dystrophy of internals, metastases of pancreas cancer into the liver were revealed. Formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

23. During the section of the dead S., 43-year-old, ischemic heart disease, which arose as atherosclerosis of coronary vessels, atherosclerotic cardiosclerosis was revealed. Besides, atherosclerosis of aorta, chronic ulcer of duodenum with disorder of stomach evacuation function, emaciation, aspiration of stomach content into trachea and bronchi, purulent aspiration pneumonia, dystrophy in parenchymatous organs were found. Formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

24. During the section of the dead F., 56-year-old, the following pathology was revealed: cardiosclerosis with moderate left ventricle wall hypertrophy, infarction of myocardium in the region of left ventricle with miomalacia and rupture of wall, pericardium tamponade, stagnant plethora of spleen, lungs, kidneys, mace liver, two-sided hydrothorax, edema of soft cerebral membrane, atherosclerosis with prevailing calcinosis of coronary arteries and liposclerosis of vessels of brain base. Formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

25. During the section of the dead A., 62-year-old it was revealed: chronic bronchitis, diffuse pneumosclerosis, bronchiectasis, emphysema of lungs, chronic pulmonary heart, venous plethora of internals, atherosclerosis of aorta, coronary arteries, brain vessels, subdural hematoma in the right hemisphere of brain with compression of tissue. Edema of the soft cerebral membrane. Formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

26. During the section of the dead S., 52-year-old, it was revealed: ascariasis atherosclerosis of aorta and coronary vessels, atherosclerotic cardiosclerosis, two-sided hemorrhagic pleuritis and pericarditis with cardiac compression, decomposition of heart activity, numerous hemorrhagic infarctions of lungs, ascites, edema of low extremities, mace liver, emaciation, nodal cancer of peripheral bronchus of the right lung with metastases into pleura, bronchial and cervical lymphatic nodes and liver. Formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

27. The patient N., 34-year-old, stayed at the hospital and was treated in the gynecological department. On 27.09.93 amputation of uterus with adnexa because ovary the coma was performed. On 04.10.93 she was operated over wound dilation of the left iliac region and the wound was drained. During the

autopsy it was revealed: injury of bladder wall and sigmoid intestine wall during the operation, rehabilitation of bladder and intestine integrity, a few bladder sutures. Diffuse purulent peritonitis, numerous abscesses between intestinal loops, vasculitis of branches of mesenteric arteries with their thrombosis, hemorrhagic infarction of intestine, two-sided lower lobar bronchopneumonia, necrotic nephrosis, uremia, edema of lungs, parenchymatous dystrophy of myocardium, liver were revealed. Formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

28. During the autopsy it was revealed: anasarca, plethora of internals, edema of brain and lungs, right lateral macrofocal bronchopneumonia, acute dermatopolymyositis. Formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

29. During the section of the dead K., 36-year-old, it was revealed: hemorrhagic encephalitis with brain edema, impression of cerebellum tonsils into great occipital foramen, hemorrhagic tracheobronchitis, hemorrhagic middle and lower local confluent pneumonia, dystrophic changes in liver, kidneys, and myocardium, enlargement of heart cavities. During the bacteriological examination, influenza virus of type A was grown. Formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

30. After the section of the dead L., 49-year-old, the following diagnosis was made: basic disease – amilidosis of kidneys. Complication of basic disease: peripheral and cavity edema. Accompanying diseases: atrophic gastritis, fibrous-cavernous tuberculosis of lungs with nidi of confluent caseous pneumonia in the lower parts and productive acinar and nodose nidi, emphysema of lungs, chronic pulmonary heart, atherosclerosis of aorta. Analyse the diagnosis. Formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

31. The patient K., 42-year-old, who had been with pathology of kidneys (chronic diffuse glomerulonephritis ) for 6 years and died from cerebral hemorrhage. At the section it was revealed: secondary contracted kidney, hypertrophy of the left ventricle wall up to 2.5 cm, brain edema, edema of lungs, and hemorrhage in the regions of right medial brain ganglia with break into lateral ventricles. Formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

32. After the section of the dead Iu., 49-year-old, the following diagnosis was made: basic disease – ulcerous petrification atherosclerosis of coronary vessels. Complications of basic disease: atherosclerotic cardiosclerosis, decompensation of pulmonary heart, relative insufficiency of tricuspid valve, peripheral and cavity edema (ascites, hydropericardium, hydrothorax), mace cirrhosis of liver, venous plethora of internals. Accompanying diseases: cirrhotic tuberculosis of lungs, emphysema of lungs. Analyse given examples and formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

33. During the section of the dead L., 56-year-old, it was revealed: atherosclerosis of aorta and coronary vessels, moderate cardiosclerosis, lobar pneumonia with left lateral transformation, purulent left lateral pleuritis, dystrophic changes in liver and kidneys, myocardium, hypertrophy of prostate gland. Formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

34. After the section of the dead N., 48-year-old, who was treated in the inpatient treatment, the following diagnosis was made: basic diagnosis – chronic alcoholism: cerebral atrophy, internal hydrocephaly, pia mater sclerosis, considerable dystrophic changes in ganglion cells of brain, steatosis of liver. Complications of the basic disease: edema and swelling of brain, and its membranes. Accompanying diseases: ischemic

heart disease, stenosis atherosclerosis of coronary arteries, infarction of left ventricle posterior wall, general venous plethora, edema of lungs. Analyze given example and formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

35. Patient L., 47-year-old, who had been using large doses of alcohol for a long time, was treated in the psychiatric hospital and suddenly died. At the section the following pathoanatomical changes were revealed: sclerosis of pia mater, dystrophic changes in ganglion cell of brain, steatosis of liver, dystrophic changes in myocardium, kidneys; edema and swelling of brain substance, internal hydrocephaly, two-sided, mainly lower lobar macrofocal purulent bronchopneumonia. Glioblastoma with decay of right frontal region with penetration into basal ganglia and cerebral peduncle, encephalic trunk were found too. Analyze given example and formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

36. The patient M., 38-year-old, was made abortion in the gynecological department. But in 3 months she died in the neurosurgical department from brain edema, which developed due to brain swelling. After the section the following diagnosis was made: basic disease – rheumatic heart disease: sclerosis and insufficiency of mitral valve. Complications of basic disease: venous plethora of internals, mace liver, cyanotic induration of kidney, spleen, edema pia mater. Accompanying diseases: chorioepithelioma of uterus, metastasis of chorioepithelioma into the brain and lungs, grey softening of left hemisphere. Analyze given example and formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

37. During the section of the dead K., 48-year-old, who was treated in mental hospital and suddenly died, the following picture was revealed: congenital stenosis of urethras, two-sided

hydronephrosis, hypertension, wall hypertrophy of left ventricle, subserous fibroleimyoma of uterus, anxious-depressive disorder (according to clinical data), chronic bronchitis, bronchosclerosis, reticulate pneumosclerosis, emphysema of lungs, chronic pulmonary heart, general venous plethora, mace liver, edema of legs, atrophic thrombosis of left leg veins, thromboembolism a of the pulmonary column and arborization of pulmonary artery, hemorrhagic infarctions of lungs. Formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

38. The patient N., 28-year-old, was treated without success in the therapeutic department of the regional hospital and died. Following changes were revealed: edema of lungs, hydropericardium (150 ml), myocardium hypertrophy, cardiofibrosis, hemorrhagic infarction of the right lung, general cyanosis, atrophic mace liver, congestion induration of kidneys and spleen, brown induration of lung, rheumatic myocarditis (presence of Aschoff's granuloma), recurrent warty endocarditis of bicuspid and tricuspid and aortic valves incompetence of bicuspid and tricuspid valves. Analyze this case. Formulate the pathoanatomical diagnosis. Write out medical certificate of death.

39. During the section of the dead, 63-year-old, following morphological changes were revealed: ulcerous and petrification atherosclerosis of aorta, fibrous-cavernous tuberculosis of the right lung, emphysema of lungs, pneumosclerosis, pulmonary heart, acute aneurism of the left heart ventricle wall, hemopericardium (259 ml), general venous plethora, mace liver, cyanotic induration of kidneys and spleen, hydrothorax, constrictive coronarosclerosis, diffuse cardiosclerosis, transmural infarction of left ventricle anterior wall. Analyze given morphological changes. Formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

40. The patient D., 76-year-old, was brought to the hospital with marked dementia. 8 days prior to his death the temperature raised, the signs of meningitis appeared and the patient died. During the section following morphological changes were revealed: ulcerous and petrification atherosclerosis of aorta, brain vessels, constrictive coronarosclerosis (stenosis of 75 % of lumens), cardiosclerosis, general venous plethora, chronic bronchitis, cylindrical bronchiectasis with suppuration, double purulent bronchopneumonia, peribronchial and perivascular sclerosis, purulent metastasis, staphylococcal meningitis, edema of brain, penetration of cerebral tonsils into great occipital foramen. Analyze given morphological and clinical data and formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

41. The patient G., 22-year-old, was delivered to the neurological clinic. She complained of numbness sensation in the right limbs with cerebral symptomatology. The diagnosis was the next: ischemic infarction in the region of vertebra-basilar artery on the basis of general atherosclerosis. The patient died suddenly. Morphological data received at the section confirmed the clinical diagnosis. But besides this, chronic thrombophlebitis and varicose veins of shins, thighs, thromboembolism of pulmonary column and pulmonary artery branches, numerous hemorrhagic infarctions of lungs, double fibrinogenous pleurisy, atherosclerosis of brain vessels, brain atrophy, internal hydrocephaly, obliterating mixed thrombosis of the middle brain artery, ischemic infarction of posterior part of the left hemisphere in internal membrane were found. Analyze given morphological and clinical changes and formulate the correct pathoanatomical diagnosis. Write out medical certificate of death.

42. In the surgical department the patient L., 72-year-old, died from double bronchopneumonia which developed after

appendectomy with drainage of abdominal cavity and jejunostomia because of gangrenous appendicitis. On 08.08.92 during the section it was revealed: phlegmonous-ulcerous appendicitis, diffuse peritonitis, double lobar macrofocal bronchopneumonia, dystrophic changes in parenchymatous organs, ulcerous and petrification atherosclerosis of aorta, constrictive of brain arteries and coronary vessels of the heart. On the base of clinical data and section results, formulate the pathoanatomical diagnosis and write out medical certificate of death.

43. In the gynecological department the woman died with the signs of peritoneal pathology. During the section subserous fibroleiomyoma of uterus, right lateral ampullary tubal pregnancy, rupture of uterine tube, hemoperitoneum (200 ml), paleness of mucous membranes, anemia of internals, small patchial hemorrhages into the layers of pleura. Were revealed punctuate hemorrhages into epicardium. Formulate the pathoanatomical diagnosis on the basis of given data. Write out medical certificate of death.

44. In the neurological department the patient of 46-year-old died of intensification of column symptomatology. During the section it was revealed: edema and swelling of brain, glioblastoma in the region of subcortical ganglia of the right brain hemisphere, softening of tumour, tissues with sloughing into the lumens of the right lateral ventricle. White softening of brain around the tumor and in the column region of quadrigeminal body was found too. On the basis of this data formulate the pathoanatomical diagnosis and write out medical certificate of death.

45. The woman, 34-year-old, was ill with hypertension, nephropathy and her third pregnancy was over with miscarriage of a fetus with the signs of intrauterine asphyxia. Formulate the cause of death and the basic disease. Write out medical certificate of death.

46. The fetus weighting 4,900 kg with brain inborn injury was delivered to the section. From the patient's delivery history it is known that the delivery was over by vacuum extraction because of the weak labour and different sizes of pelvis and fetus. The term of pregnancy is 42 week. Fill in medical certificate of death.

47. The child, 3-month-old, with numerous malformations of the nervous system died from microfocal pneumonia. Formulate the pathoanatomical diagnosis. Write out medical certificate of death.

## THEME 2

### *The autopsy of the dead in the case of death from illness of a therapeutic structure and infectious pathology* *The clinical-anatomic analysis*

**Motivation:** according to the order № 81 of Ministry of Healthcare of Ukraine 1992: corpses of the dead in hospitals are subjected to pathoanatomical section. At the same time there is a whole list of cases when the cancellation of pathoanatomical section is not supposed.

**Aim:** to study features and methodology of carrying out the section and registration of the pathoanatomical documentation in the case of the death connected to a therapeutic and infectious pathology.

**The task: to know** the basic principles and technique of carrying out the autopsy. **To learn** to determine morphological displays of diseases and complications in the therapeutic practice. **To be able** to carry out clinical-anatomic analysis in the concrete case of death from disease of a therapeutic structure, to formulate the pathoanatomical diagnosis, to write out medical certificate of death, to cipher according to ICD-X the basic therapeutic and infectious nosology.

## **Lesson equipment**

1. The autopsy report.
2. Medical certificate of death.
3. ICD–X.
4. The addition “Ж” (Regulations about the order of autopsy in treatment-and-prophylactic establishments) under the order № 81.
5. The addition “Н” (Regulations about carrying out the clinical-pathoanatomical analysis of fatal outcomes) under the order № 81.
6. The addition “Р” (Regulations about pathoanatomical examination of the dead) under the order № 81.
7. The addition “Т” (Instruction about features and the order of pathoanatomical examination of corpses which contain radioactive elements) under the order № 81.
8. The addition “У” (temporary Instruction about measures of infection avoidance of the personnel of the pathoanatomical bureau at pathoanatomical dissections and morphological examinations of bodies and fabrics, infectious patients, who are infected with immunodeficiency virus (HIV)) under the order № 81.
9. The addition “Ф” (Instruction about the bacteriological examination of the cadaveric material) under the order № 81.
10. The addition “Х” (Instruction about taking the blood of the corpse and spinal liquid for biochemical and biophysical examinations) under the order № 81.
11. Sectional set for the autopsy of the dead.
12. Body of the dead, card of the inpatient who died.
13. Educational dissection reports.
14. Clinical-anatomic epicrisis.

### **Material for pre-auditorium independent work.**

- 1 To repeat the contents of the addition “В” under the order № 81 Ministry of Healthcare of Ukraine.
- 2 To study the contents of the addition “Ж” under the order № 81.

**REGULATIONS**  
***about the order of autopsy in***  
***treatment-and-prophylactic establishments***

All corpses of patients died in treatment-and-prophylactic establishments, as a rule, are subjected to the autopsy. The head physician, the chief of the pathoanatomical bureau possess the right to discontinue the autopsy only in extreme cases.

About the discontinuing the autopsy the head physician, the chief of the pathoanatomical bureau gives written instructions about discontinuing the autopsy in the inpatient's card with substantiation of the reasons. The urgent autopsy is permitted at once after ascertainment of biological death by doctors of the medical institution; the autopsy according to a plan (the planned autopsy) is carried out after offering a card of the inpatient or medical card of the outpatient with the permit of the head physician or his assistant on medical department about the direction for the pathoanatomical autopsy.

Medical documentations of the dead are delivered to the pathoanatomical branch together with the corpse. Medical cards of inpatients died in the second part of the day before are transferred to the pathoanatomical branch of the hospital not later than 9 o'clock in the morning. Medical card of the inpatient with the pathoanatomical diagnosis must be brought not later than 5–7 days after autopsy is transferred to the medical archive of the hospital. The card can be held back for longer term only after the special permit of the management of the hospital.

The discontinuing the autopsy is not authorized:

- a) in the case of the dead who stayed in treatment-and-prophylactic establishment less than a day;
- b) in cases which demand forensic examination;
- c) at infectious diseases and suspicions on them;
- d) in all cases if the diagnosis put during patient's life is not

clear (it is not dependent on term of stay in medical establishment);

e) in cases of death in treatment-and-prophylactic establishment after diagnostic instrumental examinations, carrying out treatment during or after operation, blood transfusion, neglect with individual intolerance of medical preparations. Unidentified corpses under the order of the head physician are transferred for forensic dissection.

In the case of death from mechanical damages, poisoning, mechanical asphyxia, impact of extreme temperatures, electricity, after the artificial abortion which was carried out outside of the medical institution, violent actions under conditions if there is an evidence about the probability of one of these reasons of death, the head physician of the hospital according to the order carries out sends of the corpse for forensic dissection irrespective of time of patient's stay at medical establishment.

The head physician is obliged to inform public prosecution bodies and police about each similar case.

If the evidence about probability of one of the reasons of death are mentioned above is revealed than pathoanatomical autopsy is stopped. The doctor who carries out the autopsy undertakes measures as to preservation of the corpse, all its fabrics for the subsequent forensic examination. On the carried out part of pathoanatomical examination the report is made at the end of which the reason for carrying out the forensic dissection is proved.

The doctor is obliged to inform at once the head physician who immediately informs about it the Office of Public Prosecutor or regional police station about each case of the interrupted pathoanatomical autopsy and waits the order of the public prosecutor or police. Forensic dissection of corpses of persons who died in medical establishments, can be carried out in pathoanatomical branch of the given medical

establishment by regular forensic experts or by doctor appointed for it by the Office of Public Prosecutor.

In case of primary revealing acute sharp infectious disease or suspicion on it, the pathologist is obliged to inform about it the head physician of the medical institution and to send the urgent message about the infectious disease, food disease, professional poisoning, unusual reaction to the vaccines (f. № 058/y) in CES in the place of patient's residence.

With the purpose of perfect control over quality of diagnostics and treatment of patients of out-patient networks the autopsies can be carried out in the following cases: if the patients under the age 50 years suddenly died at home without clear genesis of death (with obligatory exception of violent death), were registered in territorial polyclinics with suspicion on acute ischemic illness of heart, cerebral vascular illnesses, new growths, acute disease of respiratory system.

Delivery of dead outpatients to the pathoanatomical branch is carried out by motor transport of treatment-and-prophylactic establishment.

Together with the body of the dead the out-patient card with detailed epicrisis, conclusion of the basic clinical diagnosis, complications, accompanying pathology and the principal cause of death is sent to the branch. On the right side of the out-patient card should be a record of the head physician (assistant) of territorial polyclinics – “On autopsy” and the signature. It acts as the order for divisions of pathoanatomical service on performing the autopsy.

**Learn the text of the addition “H” under the order № 81.**

***REGULATIONS***  
***about carrying out the clinical-anatomic analysis of***  
***fatal consequences***

The clinical-anatomic analysis is the method of establishing the reason of diseases, features of their course, and also the direct reasons and mechanisms of death.

The main methodological condition of carrying out the clinical and anatomical analysis is adherence to principles of conformity of morphological and functional changes. Thus on the base of studying clinical sheets about patient's complaints, character of symptoms which displayed during his life, physical, clinical-laboratory and other data in their comparison to pathoanatomical changes, the pathologist identifies the degree of conformity of clinical displays of illness to its morphological and functional changes.

The order of comparison of clinical and pathoanatomical diagnoses.

The results of the clinical and anatomic analysis carried out together by the pathologist and the clinical physician are written down in clinical-pathoanatomical epicrisis in the act of the commission on studying fatal consequences and in the report of the pathoanatomical conference.

The distinction of clinical and pathoanatomical diagnoses of the basic disease considered to be:

- cases, when the nosological form of disease is incorrectly determined (for example, at chronic glomerulonephritis, chronic pyelonephritis was diagnosed), it is incorrectly specified localization of process (for example, instead of cancer of stomach – cancer of ovary, or at cancer of left lung – cancer of right lung) or in the clinical diagnosis the instruction on them is absent (for example, at rectal cancer tumour of the abdominal cavity is diagnosed);
- cases when the etiology of the disease is incorrectly determined (for example, at vitamin B 12 deficiency anemia or folate deficiency anemia the diagnosis of iron deficiency anemia is put etc.);
- cases when instead of the basic disease in the final clinical

diagnosis the symptom or syndrome (for example, jaundice, uremia, brain hemorrhage, volumetric process) is specified only;

- cases, when only one of competitive disease or comorbidities is recognized;

- cases, when the order of headings in the clinical diagnosis is broken (for example, the basic disease is put not in the first, but in the second or in the third place), accordingly the encryption of the basic disease is incorrectly performed.

- One doesn't consider the following cases as divergence of clinical and pathoanatomical diagnoses:

- when background disease is not recognized;

- overdiagnosis of competitive, background diseases, comorbidities and complications if in the result of treatment because of overdiagnosis no harm was caused to the patient;

- when localization of pathological process is not correctly recognized within the limits of one organ in the in unspecialized compartments (for example tumour in the left temporal part becomes apparent in parietal one myocardial infarction of the posterior wall of the left ventricle becomes apparent as infarction of its anterior wall, etc.).

Comparing clinical and pathoanatomical diagnoses by other headings in pathoanatomical epicrisis, the unrecognized or overdiagnostic complications and accompanying diseases are taken into account. In addition to that the timelines of diagnosis of fatal complication is estimated and also taken into account.

In the case of the gross disadvantage in the medical diagnostic work, the head of the pathoanatomical branch is obliged to report about them the head physician of treatment-and-prophylactic establishment.

**Learn the contents of the addition “P” under the order № 81.**

## ***REGULATIONS***

### ***about pathoanatomical examination of the dead***

1. The order of registration of medical documentation of the dead in treatment-and-prophylactic establishment.

The ascertainment of the fact of the patient's biological death is carried out in a medical institution by the attendant or the attending physician and then the corresponding record with indication of time of death in hours and minutes is done.

The label is attached to the body of the dead with indication of such data: branch, surname, name and patronymic of the dead, year of birth and date of death, the basic clinical diagnosis. The corpse without delay is livered to the mortuary or to a cool room, appointed for keeping corpses, with temperature 0 – +4°C degrees. Bandages, drainages, intubation and tracheostomy tubes, catheters remain in the place.

At once after death of the patient the attending physician makes the pathologic clinical diagnosis, epicrisis. In pathologic clinical epicrisis such questions should be clarified:

- date of the beginning of disease and the complaint of the patient;
- date of the primary address for the medical help with the indication where and whom the patient address to;
- date and place of the primary hospitalization, the name of all medical establishments where in the further the patient was examined and treated and the content of diagnostic and medical measures;
- the generalized characteristic of clinical course during stay in each medical institution;
- date of the hospitalization into the medical establishment, diagnosis, the previous diagnosis, the final diagnosis, dates of their ascertainment, the content of the carried out medical measures (at performance of the operations – the name of the operation, duration, a kind of a narcosis);
- date of occurrence, character of symptoms of complications,

date of their recognition, the accepted measures;

- the clinical characteristic of a terminal condition, the content of the reanimation measures;
- the time of ascertainment of the biological death in hours and minutes.

The final clinical diagnosis is a medical conclusion about character of disease which had the patient, the direct reason and the mechanism of death.

It should be pathogenetically caused and correspond to the clinical facts.

The made case history of the dead is subscribed by the attending physician, head of the medical branch.

## 2. The order of pathoanatomical examination of the dead.

The urgent autopsy is authorized at once after the ascertainment of biological death of the patient. The ordered pathoanatomical autopsy is carried out at hours determined by the schedule of work of pathoanatomical bureau. The case history is delivered to the pathoanatomical branch in the nearest hour after death of the patient (at approach of death after 12.00 it should be delivered not later than 9 o'clock of the next day).

The reception and the registration of dead bodies are made by the hospital attendant of the pathoanatomical branch who checks the presence of label on the corpse, sighs of its corruption dental prosthetic appliance from coloured metal valuable things about what he makes a note in the registration book of reception and delivery of dead bodies and informs the head of the branch.

The pathologist begins to work on ordered pathoanatomical post-mortem examination studying of a corpse only after studying the case history and other medical documentation of the dead.

The head of the medical branch and the attending physician are obliged to be present at the pathoanatomical

autopsy. Presence of other doctors of the medical institution is authorized.

Before the beginning of the pathoanatomical autopsy the examination of the body with the estimation of integument condition, visible mucous membranes, determination of body weight and length. Pathoanatomical autopsy must be complete, with examination of all cavities of the body and internal organs, and if necessary – the vertebral canal, cerebrum of tubular bones, peripheral vessels and nerves, autonomic ganglions. As the basic method of pathoanatomical autopsy the method of full evisceration (by Shor) must be applied.

After finishing the pathoanatomical autopsy the pathologist makes the medical certificate of death under the form № IOb/y-84.

Histological examination of organs and tissues of the corpse is carried out in all cases. For this purpose the slices of organs and tissues are located into fixing solution.

If necessary histological examination can be carried out during the autopsy by means manufacturing preparations on freezing microtome or cryostat. From material, taken for histologic examination, the slices are cut out and after registration in the book of the laboratory assistant's work with the sectional material are subjected to the subsequent processing. The rest of material is kept in 10 % solution of neutral formalin till the end of all examinations, then under the order of the doctor is destroyed. Histological examination of organs of the corpse should be ended not later than 5 day after autopsy.

For specification of the character of disease, its etiology and pathogenesis, mechanisms of approach of death, bacteriologic, virologic, serologic, cytologic, immunofermentic and other methods of examination should be widely used. Taking out a material is carried out according to the instruction on collection of material from the corpse for

bactereologic, biochemic, biophysic, virologic examination.

Pathoanatomical examination of the dead is carried out directly after the establishment of the fact of death, but not later than one day from the moment of death.

The autopsy of corpses of people who died from acute infectious diseases or on suspicion of them, is carried out if possible at the first hours after death, it is desirable to do in the presence of the expert of antiepidemic institution who takes away the material for bactereological and virologic examination. The most reliable results are provided owing to bactereologic and virologic examinations carried out in the first 6–8 hours after death, as the exception in the first 24 hours after death.

Liquids which flow out at autopsy of corpses of persons who died because of acute infectious diseases and sewage are gathered in utensils with the disinfectant solutions (for example, chloride of lime and kept), in them not less than 2 hours, then they are merged in to the sewer network.

After finishing the autopsy of corpses of persons who died from acute infectious diseases, before stitching the incisions made on the corpse, organs and cavities are treated with disinfectant solution (for example, solution of carbolic acid or chloramine). The cavity of the corpse is filled with the rags moistened with a disinfectant solution. The corpse is washed with 1 % solution of chloramine. A sectional table is assiduously washed with a disinfectant solution, tools are sterilized, the linen, used at autopsy (overalls, drapes) are disinfected.

3. The documentation of pathoanatomical examinations of the dead.

In each case of pathoanatomical examination the report of pathoanatomical autopsy which includes such sections is made:

– passport part with a coding column and the list of questions

for statistical development on computer;

- clinical epicrisis;
- clinical diagnosis;
- the text of the report of autopsy;
- the data of histological examination;
- the pathoanatomical diagnosis;
- pathoanatomical epicrisis.

The passport part of report of pathoanatomical examination is filled on the base of the case history of the dead. Surname, name and patronymic of the dead, his age, medical institution where he died, the name of branch are pointed in it. For the use of computer techniques for the analysis of the pathoanatomical examination data in the right part of the title page of the report of pathoanatomical autopsy the coding column which must be filled is placed.

Clinical epicrisis of the report of pathoanatomical examination is made by the pathologist in the laconic form. The special attention is paid to display of the data on timeliness of the disease recognition and primary hospitalization of the patient.

In the case of death from acute surgical diseases (intestinal impassability, appendicitis, stomach ulcer perforated, etc.), acute infectious and other diseases at which the immediate hospitalization of the patient and urgent operation are necessary, except for the date the hours of the beginning of disease, the address to the doctor, hospitalization and operative interference are pointed out.

In clinical epicrisis the results of special examinations which characterize the clinical course of the basic diseases (laboratory and biochemical examinations of blood, urine, cerebrum, X-ray examinations, serological tests, blood pressure parameters) in the volume necessary for confirmation (or exclusion) of given nosological form of disease are written. At the end of the clinical epicrisis the total doses of antibiotics

which were taken, hormones, amount of transfused blood and blood substitutes are pointed out.

In the case of death in the early postoperative period in clinical epicrisis of the report of pathoanatomical examination the detailed data is cited which concerns performed operation and patient's nursing in the postoperative period. On separate sheet the parameters of hemodynamics and breath, the content and volume of infusion therapy are graphically (in hours and minutes) marked.

In the text part of the report of pathoanatomical examination all changes revealed at autopsy must be objectively stated. Firstly the structure of the body, color of the integument, visible mucous membranes, height and weight of the body are pointed out. At the presence of postoperative scars, their length direction according to anatomic areas, appearance, and also the presence in them of catheters, etc. are pointed out. At the description of cavity of the corpse, the location of internal organs, presence of contents and their kind, condition of serous membranes are marked. The description of internal organs should be done according to systems in this sequence: brain and spinal cord, breathing organs, circulation organs, hematopoietic organs, musculoskeletal system.

The pathoanatomical changes of internals and tissues are described objectively, without imposing a personal opinion of the pathologist, using standard units and varieties of colors avoiding comparisons with the size and color of those or another subjects. One shouldn't use diagnostic terminology (pneumonia, nephritis etc.) and reductions of the words. It is necessary to describe changes without allowing interpretations which contradict one another.

When describing unmodified internals their sizes, weight and absence of clear pathological changes are pointed out. If any organs are not examined, then the reason is specified.

In the case of death of patients after operation accompanied with ablation of those or another organs or tissues, in the autopsy report the description of the surgical material and area of operative intervention, anatomic interconnection of organs and tissues which appeared after operation, the condition of anastomoses, the quantity of sutures are given in details.

The text part of the report of pathoanatomical autopsy must be finished with enumeration of the materials taken from the corpse for carrying out histological, bacteriological, bacterioscopic and other examinations.

At the end of the report the post, surname and the initials of all officials of the medical institution who were present at autopsy are pointed out.

Pathoanatomical examination is finished with the formulation of the pathoanatomical diagnosis and complication of pathoanatomical epicrisis with establishment of the direct reason and mechanisms of death, comparison of clinical and pathoanatomical diagnoses, the establishment of character and the reasons shortcomings in provision of medical care.

The pathoanatomical diagnosis is formulated according to nosological principle in pathogenetical sequence with separation of such headings:

- the basic disease;
- the complications of the basic disease;
- reanimation measures;
- the accompanying diseases and their complications.

It is necessary to specify the nosological unit as the basic disease which according to classification and the nomenclature of diseases by itself or in consequence of its complication became the reason of death. The equivalents of nosological unit are such medical measures (surgical interventions, diagnostic and medical manipulations) which caused the lethal outcome in the result of side reactions or

complications which developed during them and became the reason of death.

If in patient hospitalized because of one disease, new disease appeared in a hospital (as a rule acute) one which caused death by itself or in the result of its complication then this disease is considered to be the basic one.

If the patient had some diseases which were between themselves in etiopathogenetic connection or developed independently one from another, but influenced through pathophysiological mechanisms on reasons of lethal outcome, they are specified in the heading of the basic disease which in the result of it is called one. The combined basic disease may include:

- two and more independent competitive diseases;
- two and more independent concomitant diseases;
- two diseases, one of which is the late consequence of the second one (“the second disease”).

In certain cases each nosological unit in the heading of the basic disease is written in order of importance and is marked with Arabian figures – 1, 2, 3...

Note: as competitive diseases are considered nosological units, each of which by itself or through the complications could lead to fatal outcome.

Concomitant diseases are such diseases which only in the given connection, through their negative influence on the organism of the patient led to his death.

Background diseases are such disease which played an essential role in appearing or course of other (basic) disease which became the reason of death.

The “second” disease considered a disease which lost the connection with disease which caused it and acquired independent clinical value. Putting the “second” disease into the basis of the diagnosis, it is necessary to specify the nosological unit in the heading of the basic disease with which

this disease has pathogenic connection.

In the case of patient's death in the result of side reactions or complications of medical measures which were carried out in connection with any disease, they are also specified in the heading of the basic disease.

After the determination of nosological form of the basic disease it is necessary to enumerate its most expressed morphological displays, the form and stage of development.

All operative interventions which were carried out because of it are registered in the heading of the basic disease with indication of their date and modification of implementation.

If the biopsy was carried out then the diagnosis put on the base of histological examination, the date and number of this examination are also pointed out.

Complications of the basic disease (of operative intervention, medical manipulations) are also pathological process, syndrome, nosological unit, which are linked with it pathogenetically (directly or indirectly) and which worsened its clinical course.

Complications are specified in chronological sequence taking into consideration their mutual interrelation.

If due the complications any operations or such difficult medical interventions as hemodialysis, hemosorption etc. were carried out, they should be pointed in the heading of complications.

Concomitant diseases are such disease which etiologically and pathogenetically are not linked with the basic disease and had no essential influence on a fatal consequence.

In pathoanatomical epicrisis are displayed the results of the clinical and anatomical analysis which was carrying out during the autopsy and when comparing the posthumous clinical and pathoanatomical diagnoses of disease. The pathoanatomical epicrisis should not be simple list of the

clinical and pathoanatomical data. It is necessary to specify in the laconic form the patient diseases, their pathogenetic links and pathological processes revealed at him, why the treatment was not effective, the direct reasons and mechanisms of death. The importance of these questions in pathoanatomical epicrisis in concrete cases can be different.

The direct reason of death is considered the pathological reaction, process, syndrome, nosological unit, which led to irrevocable changes in functions of the vitalses. The direct reason of death can be both as the basic disease so its complications (hemorrhage, shock, pneumonia, peritonitis, etc.)

One must compare basic disease, their complication, concomitant disease of clinical and pathoanatomical diagnoses.

The extract from the report of pathoanatomical examination, including the pathoanatomical diagnosis, the pathoanatomical epicrisis with data of comparison of lifetime and pathoanatomical diagnoses is typed and filed to the case record.

The report of the pathoanatomical examination is subscribed by the pathologist who carried out the autopsy the head of the pathoanatomical branch or the chief of the pathoanatomical branch checks it and endorses.

In addition to signatures the report should contain their surname which must be clearly written.

The first copy of typewriting report of pathoanatomical examination is constantly kept in the pathoanatomical branch.

**Study the contents of addition “T” under the order № 81.**

***THE INSTRUCTIONS***  
***about peculiarities, order and features of***  
***pathoanatomical examination of corpses which contain***  
***radioactive elements***

In case of death of the patient after radioactive contamination or in other cases the attending physician makes the certificate about radioactivity of the corpse. The certificate must contain the basic information about character and quantity of radioactive isotopes, time and way of contamination with them, level of radioactive radiation from the corpse and concrete recommendations to the pathologist about security measures at autopsy.

The certificate together with other documents is surrendered to the pathoanatomical bureau (branch). The corpse is delivered to the pathoanatomical bureau (branch) with the attached tag on which the mark about radioactivity is also put.

Pathoanatomical examination of the corpse which contains radioactive substances is carried out by staff doctors of the pathoanatomical bureau (branch). The presence of a radiologist or the person responsible for radiation safety is expedient at the autopsy. Before the autopsy the head of the pathoanatomical bureau (branch) together with the attending physician and radiologist use concrete measures on protection of the personnel against an internal irradiation at penetration of radioactive substances into organism, on skin, clothes.

The personnel present at the autopsy should be suitably instructed on radiation safety. Autopsy is carried out in protective clothing (the overalls rubberized apron, rubber boots and mittens).

All personnel who have contact with radioactive corpse are subjected to individual dose control. Radioactive pollution of hands, clothes, work surfaces is controlled by the dosimetric device as in a process of working so after autopsy.

For the prevention of dirtying of the working room, the sectional table is covered with a dense polyethylene film, or on it is put a pan, made from stainless steel (or other similar materials which can be washed well and which are not exposed

to corrosion) which has sides and water drain. The most convenient is working on sectional tables which easily undergo decontamination (stainless steel, etc.).

All sewage, blood, contents of intestine are gathered in the closed buckets and then their radioactivity is determined. If radioactivity does not exceed maximum allowable level, liquid are drained into sewerage network. At higher radioactivity they are kept in places of temporary keeping during the time which provides its decrease to the indicated norms, or are passed to the disposal facilities of radioactive waste products according to the instruction of the radiologist.

Slices of bodies and tissues for histological examination are kept in archives, are taken of small sizes if possible, are located into fixing solutions and are subjected to dose control. The order of manufacturing of histological preparations, their studying and preservation in archives is determined by the head of the pathoanatomical branch according to recommendations of the radiologist.

Slices of bodies and tissues for radiometric examination are taken in a quantity of 30–50 g and located in preliminary checked with radiometer clean bottle which is closed with corks and sealed up as at direction for forensic-chemical examination, and sent to the sanitary-epidemiological station. The fixing solution is not used.

The samples are taken in clean gloves and with clean tools, which are washed (by means of tampons) with 2–3 % solution of a citric acid sampling of each organ, preventing the transfer of radioactive elements from one organ to another.

After finishing, the gloves, aprons, rubber boots and tools are carefully washed with water or soap-soda solution with a brush. The level of their residual radioactivity (radioactive pollution) is defined. If it exceeds the established allowable level the repeated processing is carried out, working rooms are carefully cleaned and dose control is carried out.

Hands are washed with warm water with soap, in a soap-soda solution or with 1–2 % solution of a synthetic detergent, using a soft brush. The residual radioactivity is checked and if it is necessary the processing is repeated. The general shower is taken. At presence of accidental pollution with radioactive elements, the body areas are carefully washed with water and soap.

After finishing the processing hands are greased with vaseline, lanolin or other indifferent ointments.

The chief and the head of the pathoanatomical branch immediately informs about the results of autopsy the head physician and radiologist of regional hospital.

Burial of corpses which contain radioactive elements is carried out by a funeral team under supervision of the expert – radiologist. At delivery of the corpse the pathologist is obliged to warn the persons, responsible for the burial about necessity of taking all measures as for radioactive safety.

The place and the order of burial of the corpses are coordinated with bodies of sanitary supervision.

### **Study the contents of the addition “Y” under the order № 81.**

#### ***THE TEMPORARY INSTRUCTIONS about preventivemeasures of infection avoidance of personnel of pathoanatomical autopsies at pathoanatomical openings and morphological examinations of organs and tissues of the patients infected with the human immunodeficiency virus (HIV)***

The personnel of pathoanatomical branches have very close contact with retrovirus which causes HIV infection and the pathogenic agent of infections accompanying to it (cytomegalovirus infection, pneumocystic infection, etc.)

HIV is resistant to ultraviolet and to gamma-radiation in doses which exceed normal ones at 10 times. At a

temperature of 56 °C the virus perishes in 10 minutes. It is sensitive to ethanol (25 % and higher), 0.5 % chloride of lime solution, hydrogen peroxide and lysol, chloramine.

The personnel of pathoanatomical branches while working with material of the patient with HIV infection and at pathoanatomical autopsies should observe safety measures:

1. It is strictly forbidden for persons with the flu, acute respiratory viral infection, hepatitis, infectious mononucleosis, damage of skin of fingers, arms with the general indisposition, or for pregnant women to work with material of the patient with HIV infection.
2. At autopsy are dressed two overalls, hat, double gauze, glasses or a transparent shield which covers all face, two pairs of rubber gloves, rubber boots or covers on shoes. After the autopsy the clothes are burnt.
3. The sectional room and sectional tables are washed carefully with 0.5 % chloride of lime solution or 5 % chloramine solution.

All tools which were used during the autopsy, are washed with hot water and sterilized in the autoclave for 2–3 hours or are alcoholized with 3 % solution of chloramine, or disinfected in 0.5 % chloride of lime solution for 2–3 hours.

It is not desirable to wash organs with water under pressure for the prevention of splashing and to use an electric saw for sawing bones.

4. At cuts during the autopsy it is necessary to make drainage from a wound, to syringe it with flowing water, then with hydrogen peroxide and to fill with iodine. It is necessary to inform SES about this. These patients should be under medical supervision and examined for revealing virus-specific antibodies in blood.
5. In the laboratory when cutting material of patients with HIV infection (biopsy, sectional material) one must dress an apron, gauze bandage, mask, disposable rubber gloves.

6. Material of the patient who died from HIV (pieces of organs and tissues) must be fixed in formalin not less than during 12–15 days in utensils with bright mark which is well visible. Only after specified term of fixation the material is permitted to be cut out for preparation of histological preparations.
7. All afore-named measures are necessarily applied at autopsies of the dead on suspicion of HIV infection.

**Study the contents of the addition “Φ” under the order № 81.**

### ***THE INSTRUCTIONS***

#### ***on sampling the material from the corpse for bacteriological and virological examination***

1. Bacteriological and virological examination of organs, blood, liquor, pathological liquid of the corpse are applied for revealing (confirmation) the etiology of infectious diseases, evaluation of correctness and effectiveness of antibacterial treatment which was carried out.
2. Sampling the material for bacteriological examination must be carried out also at autopsy of the dead, died from other diseases which were accompanied by different infectious and inflammatory processes or complications (cholecystitis, endocarditis, sepsis, pneumonia, suppuration of wounds).
3. At autopsy of the dead from infectious disease, the presence of bacteriologist or virologist of the medical antiepidemic establishment is expedient who samples the material from the corpse and also crops this material on corresponding medium directly at the place of autopsy. In his presence the pathologist must take with him all necessary material. For this purpose it is necessary to have such equipment and instruments in the sectional room:
  - refrigerator with temperature + 4 °C;
  - set of sterile tools and sterile utensils (banks, scalpels, scissors, forceps, spatula, platinum loops, Petri cup, test-tubes);

- sterile syringes (10–20 ml) with long needles or disposable syringes;
- sterile rubber gloves;
- bottles with sterile physiological solution;
- test-tubes or bottles with sterile 50 % solution of glycerin on a physiological solution;
- hermetically closed bottles with rubber corks, which contain sterile acid-free environment;
- sterile test tubes with wads of cotton woods on sticks;
- degreased slides in the closed utensils (banks with alcohol with cover);
- bottle with denatured alcohol (300 ml);
- alcohol fuse and matches;
- box or a metal container (thermos) for transportation of material;
- cotton wool and gauze napkins;
- parchment and paper for packing plastic bags;
- marking paper labels and banks for direction of material to a laboratory;
- glue, simple pencil for records on glass;
- disinfectant solutions (chloramine 3–5 % – 10 l).

4. Material from the corpse must be sampled not later than 6–8 hours after death. In certain cases sampling material is permitted later – 24–48 hours. In these cases for revealing pathogenic microbes the crops of microorganisms on medium are carried out for getting small copies.

5. Samples for bacteriological, virological examination are taken with the help of cutting off pieces of tissue, scrapes, capture of semi-fluid mass on a tampon, pumping out blood and other liquids into Pasteur pipette or syringe. When sampling material it is necessary to observe the rules of asepsis.

6. At sampling the material of parenchymatous organs, skeletal muscles, the pieces of their tissues in volume of 1–2 cm<sup>3</sup> are

cut with a clean scalpel or a skiver, picked up for free edge by a forceps, poured from different sides with alcohol and set on fire

7. After combustion of alcohol the pieces are immediately are located into sterile utensils by means of cutting near the edge of forceps with sterile scissors. The pieces of tissues appointed for histological, bacterioscopic, immunofluorescence examination are taken away and fixed in the order established for histological examination.

7. The bone marrow of the sternum and of other tubular bones is taken away by pressing it out with bone forceps. Before this the surface of the bones is carefully cleared from the bone crumbs with a sterile napkin moistened in alcohol and then is carefully is burnt in a flame. The bone marrow of diaphysis of tubular bones is taken away after the autopsy of marrowy channel and disinfection of the sawn with the flame by means of scraping it with a sterile tool.

8. Thick contents from the cavities (pockets of purulent flows, wound channel, intestine, etc.) can be brought on a sterile tampon or spatula after dissection of the wall of the cavity, preliminary disinfected surface in places of possible incisions.

9. Sampling the material from the surface of the nidus of infection (of skin, mucous membranes, etc.) is carried out by scraping modified tissues and dried secretions with the sterile tool.

10. To sample the material from the cavity of the skull, the cranium must be washed with alcohol. Bones are sawn with the saw washed in a 10 % solution of lysol and carefully alcoholized trying not to damage dura mater. After ablation of bones of cranial vault, the dura mater is wiped by alcohol or iburnt. The liquid from subdural spaces is taken through a puncture by means of a sterile syringe or Pasteur pipette. Sampling the material on a tampon after incision of dura mater with sterile scissors is possible.

With the sterile tool are also carried out cutting pieces of the modified meninge and pieces of brain tissue before its extraction from the cranial cavity.

After the extraction of the brain from the cranial cavity pieces of tissue are sampled accordingly to the point 6 of given instructions.

11. Blood samples are collected before incision of the skull and carrying out evisceration. After removal of sternum pericardium is dissected. The surface of right ventricle is punctured with the end of sterile Pasteur pipette or a thick needle of a syringe. Blood is sucked into pipette by means of rubber balloon in quantity of 10–20 ml.

Blood samples can be collected also from the cavity of the right auricle or cavity veins.

For revealing antigens of hepatitis virus some drops of blood are applied to the stripes of clean filter paper which after air drying is sent in the envelope to virological laboratory.

12. Sampling liquid contents of cavities is carried out with a syringe, Pasteur pipette or a tampon after dissection of their walls in sterile environment. Contents of intestine are taken away by cutting off the whole separate areas of intestine having tied them up preliminary from both ends.

Small cavity formations in fabrics and cavity bodies (cholecyst after bandaging of its channel) are entirely exhausted.

13. For carrying out bacteriological, cytovirologic and immunofluorescent examinations from the same places, tests for bacteriological (virologic) examinations, smears-prints on defatted glasses are gathered, which after drying are fixed into solution of acetone (8 min), methyl alcohol (5 min) or in Niciphorov's mix (10–15 min).

14. At sampling of tests, which are intended for removal of anaerobic flora, except for observance of rules of aseptic, contact of material with atmospheric air must be limited much

as possible. Slices of tissues in volume 2–3 cm<sup>3</sup> after disinfecting of surface by flame are quickly placed into sterile utensils with dense covers and directed to bacterioscopic laboratory. Sampling of liquids is carried out by means of a syringe, whenever possible from depth of tissue or from cavities of abscesses with the intact walls. The received liquid is injected at once into hermetic bottle (by a puncture of a rubber fuse); penetration of air into the bottle is not permitted.

15. It takes a little time for sampling material and its examination. Sampled material is brought directly to a sectional hall, near a section table, or immediately brought to laboratory. It is allowed to keep the material for bacteriological examination only in a thermostat (refrigerator) at temperature +4 °C or in a 50 % solution of glycerin during one day.

16. A direction to a laboratory should have the basic sheets, necessary for carrying out the examination: the name of the material, time and place of sampling and marks of tests, a surname, a name and a patronymic of the dead, number of the report of autopsy, clinical and pathoanatomical diagnoses, duration of disease, the sheet about antibiotics which were used for treatment, a specific goal of examination, a surname of the doctor, his post, the address of establishment from which the material was directed.

The goal of examination is formulated according to a problem which is being solved during the autopsy. More often it may be limited to identification of pathogenic agent of infectious disease and determining its antibiotic sensitivity.

18. Before sending the material to the laboratory, edges of utensils in places of closing with a cork are filled up with sealing wax or paraffin. The utensils are put into a polyethylene package to which the label is also attached, then it is tied up. During packaging the material into containers, boxes, it is necessary to observe safety measures, exclude the possibility of breaking glassware's at transportation.

Virological tests are placed into containers (thermostats) with dry ice.

19. Delivery of the infected material is carried out by a messenger.

20. An estimation of results of bacteriological (virological) examination is carried out in complex with the pathoanatomical data, lifetime clinical-laboratory examinations, features of the clinical picture of the disease and epidemiological circumstances.

**Study the contents of the addition “X” under the order  
№ 81 Ministry of Healthcare of Ukraine.**

***THE INSTRUCTIONS***

***on sampling of cadaveric blood and a spinal liquid  
for biochemical examinations***

1. Biochemical and biophysical examination of blood, spinal liquid and other substances of a corpse is carried out when the dead is in an uncertain coma for revealing etiology and kind of coma, estimation of tanatogenesis and adequacy of patient's treatment. Such examinations are also necessary for revealing the reasons of sudden death of patients during the narcosis, operation, infusion therapy, hemodialysis, the angiography and after reanimation.

2. The most important information is received at simultaneous examination of cadaveric blood and a spinal liquid of parameters of osmolarity, concentration of ions of sodium, calcium, potassium, concentration of glucose, urine, creatinine, bilirubin.

3. It is possible to reveal different types of hyperosmolar coma, hyperglycemic, hypersodium, uremic. In case of occurrence at the dead of acute increase of osmolarity of blood and spinal liquid simultaneous examination of concentration in the same substances of glucose, urine and potassium. Examination of

concentration of glucose and potassium enables to distinguish hyperglycemic coma in dead from diabetes. Examination of concentration of urine, potassium and sodium helps to reveal acute kidney insufficiency.

4. Fast and deep change of osmolarity, concentration of sodium, potassium, glucose, urine only in blood, or only in a spinal liquid, separately one from another may become as fatal consequences for patients. Therefore the great value has simultaneous comparison of the afocited blood parameters and spinal liquid at urgent autopsy of the dead at hemodialysis, angiography, narcosis or after reanimation.

5. The list of parameters of cadaveric blood and spinal liquid and their pathological changes at dead patients are stated in methodical instructions: "Features of pathoanatomical diagnostics ion osmotic complications of intensive therapy and reanimation" (Moscow, 1982.) and also "Biochemical examination of cadaveric blood in pathoanatomical and medicolegal diagnostics" (Moscow, 1977).

6. In case of patient death in uncertain coma, after clinical death, and also at sudden unforeseen patient's death during hemodialysis, angiography, narcosis, the urgent (for the first two hours after death) pathoanatomical autopsy biophysical examination of blood and spinal liquid is recommended.

7. The most simple and fast way of extraction of 10 ml of spinal liquid is suboccipital puncture by means of a clean needle for spinal punctures (not necessarily sterile) in position of the corpse on one side. Spinal liquid is possible to be collected also with 10 ml syringe with a long needle after trepanation of the skull, or from under basal surface of the brain near the pituitary stem before intersection of middle cerebral arteries or puncture of cerebral ventricles, or a puncture of space under pia mater or puncture of brain ventricles of the brain, or puncture of space under pia mater. It is necessary to take into account that the impurity of blood

raises in a spinal liquid in potassium ion concentration. The easiest way to avoid the impurity of blood is suboccipital puncture.

8. In connection with that parameters of blood the differ in different parts of vascular ring, and also for standardization with already examined parameters of the corpse, it is desirable to extract during autopsy 10 ml blood from a femoral vein. Simultaneously it allows to take in the beginning of opening blood from heart for bacteriological examinations, and then – blood from a femoral vein for biochemical-biophysical examination.

9. There are most expedient quantitative biochemical and biophysical (osmometr, a fiery photometer) examinations of cadaveric blood and a spinal liquid to carry out in that clinical laboratory in which patients were observed. The contract based on such examinations is made between the head of the pathoanatomical bureau and hospital or the order of the head physician for given out pathoanatomical branch.

10. Cadaveric blood and a spinal liquid without a delay are delivered by the pathoanatomical personnel to clinical laboratory in marked test tubes. Time between sampling the material and its examination should be maximum short. An order to laboratory must have such lists: a surname, a name and a patronymic of the dead, the name of material in the marked test tube, time of sampling the material, specific goals of examination, clinical and pathoanatomical diagnoses, a surname of the pathologist and the address of establishment which directed the material. If in blood and a spinal liquid of the dead are unequal parameters, filled in separate directions on each marked test tube are examined. Forms with results of examinations get from clinical laboratory by the personnel of a pathoanatomical bureau or branch and should be pasted in the autopsy report.

11. Results of examinations of blood and spinal liquid of the

dead, in view of posthumous changes are compared to similar parameters in the case record (last parameters before death are especially important). Taking into account, that sudden death during medical manipulations or operations is not always connected with medical mistakes (for example, unforeseen individual allergy reactions to medicines, during granting emergency medical help not compatible with life on last clinical-biological parameters before reanimation), tanatogenes it is expedient to stipulate a condition of the patient with anesthesiologists, reanimatologists, surgeons and other experts who gave emergency medical care to the patient or carried out surgical manipulation.

### **Study the structure of the autopsy report.**

#### **Study the structure of clinical-anatomical epirisis**

In clinical-pathoanatomical epicrisis you should find the display on the following moments:

1. What was the illness of the dead?
2. How did the disease proceed?
3. What measures (partly or completely) found the display in the clinical diagnosis of the pathoanatomical changes revealed on section?
4. The reasons of divergence of clinical and pathoanatomical diagnoses.
5. What influenced the inaccuracy of lifetime diagnostics (if it took place) on a consequence of disease?
6. What is possible to count the direct reason of death?

### **THE SCHEME**

#### ***of clinical-pathoanatomical epicrisis***

Clinical-pathoanatomical epicrisis consists of two parts: clinical and pathoanatomical. In the first part is stated the material of the clinics, where the characteristic of disease and

its course are briefly given, in the second one – the estimation of pathoanatomical changes and comparisons of them with the data of the clinic. In the beginning of epicrisis the surname, the name and the patronymic, sex and age of the dead are pointed out. Then time of stay at the hospital is pointed out.

“Petrenko N. I., a male, 55 years old who was at the second lung branch TOTD 41 l/d, was hospitalized because of aggravation of chronic pneumonia. He was ill for last two years, periodically received treatment at the hospital. The last aggravation of disease was accompanied by significant heart insufficiency. The symptomatic and pathogenetic treatment were provided to the patient at the hospital. However there was no significant improvement of the condition. 12.02.1979 the patient had a profuse pulmonary bleeding, in the result of which death came”.

Then follows the second part of epicrisis in which the general estimation of the data of autopsy in comparison with the final clinical diagnosis. If the data of autopsy confirm the final clinical diagnosis, then a pathoanatomical part of epicrisis is of the following example:

“... pathoanatomical autopsy revealed changes which found the display in the clinical diagnosis...”

If other disease which caused death was revealed and which is considered as the basic disease in the diagnosis, then the pathoanatomical part begins with ascertaining this mistake at lifetime diagnostics.

“... Pathoanatomical autopsy revealed changes which did not find the display in the clinical diagnosis. So, during the lifetime of the patient bronchogenic cancer of the right lung was not recognized. Germination with tumor tissue of the vessel wall led to erosive bleeding, which began the process, which in turn led to death of the patient. Therefore there is some divergence between clinical and pathoanatomical diagnoses on basic disease. The reason of clinical

misdiagnostics, most likely, is inadequate X-ray examination, and also the absence of cytologic examination of phlegm on atypical cells. However, on a fatal outcome of suffering the mistakenness of lifetime diagnostics did not affect, as the patient addressed for the help at that stage of disease when carrying out of radical treatment was impracticable. It is necessary to consider acute anemia in the result of erosive bleeding as direct reason of death...”

If pathoanatomical autopsy revealed complications of the basic disease, which were not diagnosed, during the lifetime then in the pathoanatomical part of epicrisis is pointed out:

“... Pathoanatomical autopsy revealed changes which found in basic disease the display in the clinical diagnosis. But its complications left unrecognized. Therefore there is divergence of complications between clinical and pathoanatomical diagnoses...”

**Recollect complications and the reasons of death in the result of the basic diseases of a therapeutical structure.**

### **Questions for self-checking from theoretical part of the lesson**

1. Rules and requirements for drawing the report of pathoanatomical autopsy.
2. Components of the autopsy report.
3. Features of registration of the passport part of the autopsy report.
4. Features of registration of the descriptive part of the autopsy report.
5. Features of autopsy techniques at therapeutic and infectious pathology.
6. Features of drawing the pathoanatomical diagnosis.
7. Compound components of the pathoanatomical diagnosis.

8. Rules of writing clinical-pathoanatomical epicrisis.
9. Compound components of clinical-pathoanatomical epicrisis.
10. Name principal causes of death of patients at cardiovascular, rheumatic, cerebrovascular, nephrological, infectious diseases, at pathology of respiratory organs, gastrointestinal tract, iatrogenic.

### **Algorithm of classwork**

1. Take part in autopsy.
2. Discuss clinical-anatomical features of a concrete case of dissection at the lesson.
3. Conduct the clinical-anatomical analysis of diseases which led to lethal outcome in result of misdiagnosis during the life and wrong treatment.
4. Features of the clinical-anatomical analysis of diseases, which led to fatal outcome because of untimely diagnosis and ineffective treatment.
5. The clinical-anatomical analysis of diseases which led to lethal outcome because of wrong medical actions.
6. The clinical-anatomical analysis of diseases, which led to fatal outcome because of medical pathology.
7. The drawing pathoanatomical diagnosis, clinical-anatomical epicrisis, filling in the medical certificate of death in all abovementioned cases of death, and also in resulted below situational tasks.
8. Give answers to situational tasks.
9. Discussion of substantive provisions of the theme.

## THEME 3

### *Autopsy of the man died from surgical and obstetric pathologies* *The clinical-anatomical analysis*

**Motivation:** according to the order № 81 Ministry of Healthcare of Ukraine 1992, all patients died at hospitals of surgical and obstetric-gynecological branches are subjected to pathoanatomical examination.

**Aim:** studying features and techniques of carrying out the autopsy and registration of the pathoanatomical documentations in case of death because of surgical and obstetric-gynecological pathology.

**The task: to know** features of dissection of patients died after operational intervention. **To learn** how to define morphological displays of complications of surgical, obstetric, gynecological diseases. **To be able** to carry out the clinical-anatomical analysis, to formulate the pathoanatomical diagnosis, to write out the medical certificate of death, to cipher the disease according to ICD–X death rate which is connected with operative and reanimation manipulations.

#### Lesson equipment

1. The autopsy report.
2. The medical certificate of death.
3. ICD–X.
4. The addition “Ж” (Regulations about the order of autopsy in treatment-and-prophylactic establishments).
5. The addition “H” (Regulations about carrying out the clinical-pathoanatomical analysis of fatal consequences).
6. The addition “P” (Regulations about pathoanatomical examination of the dead).
7. Section set of autopsies.
8. Body of the dead man, card of the inpatient who died after surgical or obstetric-gynecological pathology.

9. Educational autopsy reports.
10. Clinical-anatomical epicrisis.

### **A material for pre-auditorium work**

1. Repeat the contents of the addition “B” under the order № 81 Ministry of Healthcare of Ukraine.
2. Repeat the structure of the autopsy report and clinical-pathoanatomical epicrisis.
3. Recollect postoperative complications, the reasons of death at surgical and obstetric-gynecological diseases.

### **Questions for self-checking from theoretical part of study**

1. Rules and requirements for drawing the report of pathoanatomical autopsy.
2. Features of techniques of autopsy of the patients died after operational intervention.
3. Features of techniques of autopsy of the patients died after childbirth and obstetric pathologies.
4. Features of the clinical-anatomical analysis in case of death because of surgical and obstetric-gynecological pathology.
5. Features of the encryption of surgical and obstetric pathologies according to X international classification.
6. Features of the encryption of death rate after reanimation manipulations according to X international classification.
7. Features of registration of the pathoanatomical diagnosis at iatrogenesis.
8. Name principal causes of death because of operative intervention after childbirth.
9. Mother's death rate according to X international classification.

### **Algorithm of classwork**

1. Take part in autopsy.
2. Discuss clinical-anatomical features of a concrete case of

dissection at the lesson.

3. Make clinical-anatomical comparison to the surgical pathology.

4. Make clinical-anatomical comparison to the obstetric-gynecological pathology.

5. Make the clinical-anatomical analysis of diseases which led to lethal outcome because of misdiagnosis during the lifetime and wrong treatment.

6. The clinical-anatomical analysis of diseases, which led to fatal because of untimely diagnosis and ineffective treatment.

7. The clinical-anatomical analysis of diseases which led to lethal outcome.

8. The clinical-anatomical analysis of diseases which led to lethal outcome in connection with complications because of surgical intervention.

9. The clinical-anatomical analysis of diseases, which led to fatal outcome because of medical pathology.

10. The drawing pathoanatomical diagnosis, clinical-anatomical epicrisis, filling in the medical certificate of death in abovementioned cases of death, and also in resulted below situational tasks.

11. Give answers to situational tasks.

### **THE AUTOPSY REPORT № 1**

- Stay at the hospital – 11m/day.
- Referred to the hospital – by central regional hospital (CRH).
- Place of admission – Terebovliansk CRH.
- Branch – neurosurgery.
- The case record – № 2083.
- Name – P. V. M.
- Age – 55 years old.
- Nationality – Ukrainian.
- Occupation – the watchman.

- Place of residence – the Ternopil area, Terebovliansk region, v. Ostrovets.
- Date of admission – 12.05.1976.
- Date of death – 23.05.1976 at 9–15.

Short clinical, laboratory and other data of examinations. The patient was admitted in a serious condition with complaints about the general weakness, weakness in the left hand, leg, periodical pain in the right frontal area. He became ill two months before admission to the hospital, the illness was connected with the surviving craniocerebral trauma. The condition became worse, the left-sided hemiparesis appeared. Cachexia is clearly expressed. Pulse in arteries is not palpated. AT is not determined. Paresis of the left hand, anisocoria D<S. The condition of the patient became worse in spite of treatment. The operation – drilling diagnostic burr hole in the right temporal area (20.05.1976).

The admission diagnosis: suspicion for volumetric process of the brain. The admission diagnosis – tumour of right fronto-parietal region.

The clinical diagnosis. The basic disease. Metastatic lesion of the right fronto-temporal region. Complications: clinical disturbance of cerebral blood circulation in peripheral vessels.

### *The data of autopsy*

The corpse of the man is of correct body structure. The growth is average, subalimentation is observed. Cadaveric rigidity is well expressed the muscles of arms and legs. Cadaverous spots are of pale, purple colour confluent. There are a lot of traces from injections on the skin of elbow flexion of forearm, the skin of right hip. Turgor of the skin is normal. Above the right ear, in the right temporal region is the frontal section of 7 cm in length, sutured with 9 silk nodal sutures. In the left part of the head on border of parietal and occipital region is cyanotic-crimson spot, 6.5x5 cm; which protrudes

above the skin. Subcutaneous tissue, accordingly to this region is filled with blood, the vascular grid is dilated. On the skin of the anterior part of chest are visible numerous cyanotic traces of the round form in diameter of 3 cm, obviously from cupping glasses.

Internal examination. The peritoneum cavity is free from liquid, leaves of peritoneum are smooth and brilliant. Pleural cavities are free, leaves of pericardium are of the same qualities. The aorta is of reduced elasticity. The intima of the aorta is covered with numerous atherosclerotic and atheromatous patches, some of them with ulcers, some are petrified in the abdominal region. In the aorta and common iliac arteries are mural thrombi. The mucous membrane of the trachea and bronchi is overfilled with dirty-grey layers. Lung tissue is pasty in the rear-lower departments, fleshy in the cut. There is induration of 2.5 cm in the lower department of right lung in the cut it is the nidus of caseous necrosis which is located subpleurally. Similar changes are found in lymph nodes of right pulmonary hilum. The upper part of left lung is changed by scar with the numerous nidi of petrification. The rear-lower department of left lung is covered with grey-red spots with purulent discharge on surface of the cut. The adrenal glands are in the form of leaf, without features. Renal capsules are easily removed. Kidneys are sluggish. The border of layers is clear, tissue plethoric. Mucous membrane of urinary tract is smooth, flat. The size of the heart is 12x12x6x2.5 cm. The thickness of the wall of right heart ventricle is 0.3 cm, of the left – 1.7 cm; heart valves and vessels are thin, smooth and lustrous. Myocardium is with the phenomenon of cardiosclerosis. The spleen is small, contracted; near the anterior border is a transmural ischemic heart attack of the triangular form. Pancreas is large lobed, of grey-pink colour in the cut. The dura mater is little strained. The pia mater is acutely swollen, jelly-like modified. There is an unclear limited

area filled with blood in the parieto-occipital region. The tissue of the brain is acutely swollen and filled with blood. The clinical picture of the brain is saved; in the region of anterior commissure is softening of white colour. Hyperemia and brain edema are clearly expressed. The constriction mark which covers tonsil of cerebellum is visible. In vessels of circle of Willis the walls of which are places with atherosclerotic patches, are revealed grey crumbled substance mixed with blood. The right anterior cerebral artery is blocked with mixed thrombus.

Histological examination. Brain – areas of white softening of tissue with granular layers of violet colour, in the other area – the softening is partly filled with erythrocytes.

Lungs – petrified nidi of caseous necrosis are surrounded with zones of pneumosclerosis; in the subpleural nidus is ossification.

Lymph node of the pulmonary hilum – petrified nidus of caseous necrosis, sclerosis perifocal areas.

## **THE AUTOPSY REPORT № 2**

- Medical establishment – city hospital.
- Branch – vascular.
- The case record – № 1036.
- Name – V. C. A.
- Age – 45 years old.
- Occupation – the housewife.
- Date of admission – 24.01.1994.
- Date of death – 28.01.1994.
- Date of autopsy – 28.01.1994.

Brief extract from the case record. The patient is delivered to vascular branch of surgical clinic by first aid brigade with the signs of thrombosis of the right iliac artery. She was operated in urgent order due to this. The postoperative period proceeded hardly; the signs of heart insufficiency grew:

swellings, short breath, general weakness. Treatment was not effective and the patient died.

The clinical diagnosis: rheumatism, an active phase, myocarditis. Cirrhosis of liver, acute thromboembolism of the right femoral artery. Ischemia is in the IV stage. Acute glomerulonephritis.

### *The data of autopsy*

The corpse of the woman is of correct structure of the body, well-nourished. The skin and visible mucous membranes are pale, with a cyanotic shade, swelling on the lower and upper extremities. Cadaveric rigidity is well expressed. Cadaveric spots are of cyanotic-crimson colour, and located on the rear surface of the body and extremities. In the right iliac area on the skin is a postoperative cut sutured with 5 silk sutures. Pleural cavities contain up to 1.5 l of serosity from both sides. Pleural leaves are smooth, lustrous, without malunions, with a cyanotic shade. The peritoneal cavity contains up to 4 l of serosity. Serous membranes are smooth, lustrous. Mucous membrane of throat, trachea of bronchi is swollen, of pale pink colour. Lungs are of pink colour. Parenchyma is plethoric, swollen. Bronchi are without pathological changes. In lungs arteries in the place of branching are mixed thromboembols. On the anterior surface of the upper part of right lung is the area of dark-red colour with clear borders. The cavity of pericardium is completely obliterated for the account of growth of grey colour of chondroid tissue. The similar growth is found in the thickness of myocardium ventricles and atrium where they are represented by nodes of moderate density in diameter up to 1 cm. In general heart is of high density, heavy, the sizes are up to 21x14x8 cm. The cardiac muscle is of brown colour, flabby. Endocardium is without pathological changes. The size of the liver is 30x26x16 cm, dense consistence, dry, with muscat picture, the surface is smooth. Biliary tract is permeable. The

pancreas is without visible macroscopical changes. Spleen sizes are 18x11x8 cm, dense, the capsule is smooth, pulp is dark-red. Kidneys are of the usual sizes, their weight is 320 g both, capsules are easily removed. The surface of kidneys is smooth, border of layers is clear; parenchyma of kidneys is plethoric. The mucous membrane of urinary tract is without changes. Stomach is of usual sizes, mucous membrane is with numerous petechial hemorrhages and erosions.

Results of histologic examination: heart – dystrophic changes in cardiomyocytes, growth of mesothelial cells of the polygonal form, diffuse cardiosclerosis.

Pericardium – growth of mesothelium with signs of pathological mitoses, the polygonal form, without clear borders, and germination into the neighboring organs of mediastinum.

Lungs – plethora of vessels, diapedesis in alveoli and alveolar septum of erythrocytes, necrotic changes in parenchyma.

Stomach – areas of necrosis of mucous membrane with formation of erosions, lymphocytic infiltration of mucous membrane, submucous membrane, venous plethora.

The artery of the lung – is in an enlightenment of thromboembols.

Liver – venous plethora, fatty dystrophy of hepatocytes, growth of connective tissue.

### **THE AUTOPSY REPORT № 3**

- Medical establishment – city hospital.
- Referred to the hospital – by emergency team.
- Branch – surgical.
- The case record – № 243/44536.
- The attending physician – O. O. P.
- Name – B. C. S.
- Age – 57 years old.

- Gender – female.
- Occupation – a pensioner.
- Date of admission – 27.07.1994.
- Date of death – 01.08.1994.
- Stay at hospital – 5 days.
- Date of autopsy – 02.08.1994.

Brief extract from the case record. The patient was admitted in a bad condition. She complained of vomiting, emaciation, the general weakness. From the anamnesis is known, that 42 days ago she drank an acetic acid; was on hospitalization in gastroenterological branch due to burn of gullet and stomach.

The clinical diagnosis: cancer of body of the stomach: II group, II stage. Pyloric stenosis of the stomach. Cachexia. Pulmonary embolism. Condition after burn of gullet and stomach.

#### *The data of the autopsy*

The corpse of the woman is of correct structure of the body, subalimentation. Skin and visible mucous membranes are pale. Turgor of the skin is poor. Hypodermic tissue is almost absent. Cadaveric rigidity is well expressed in groups of muscles of hands and legs. The peritoneal cavity is free from liquid. Leaves of peritoneal are smooth, lustrous. Pleural cavities are without pathological changes. Heart are sizes 9x10x5x3 cm, weight – 240 g, its cavities are not dilated. Valves of heart and the large vessels are not changed. The myocardium is of brown colour. Thickness of the wall of right heart ventricle is 0.3 cm, left one – 1.2 cm. The intima of the aorta and other large vessels are smooth, with separate yellowish patches and spots. The mucous membrane of trachea, bronchi is of pale pink. In the lumen of respiratory tract are visible mucous-like weights. Lungs are friable along the full length of grey-pink colour, from surface of the cut flows a foamy hemorrhagic liquid. The mucous membrane of

the gullet is atrophied with scarred changes. The mucous membrane of the stomach is atrophied, sclerous, in a pyloric compartment – course deforming scar which almost completely closes the output from the stomach. There are areas of necrotic changes on the surface of mucous membrane of stomach. The liver is in weight of 1500 g, of sluggish consistence, yellow-brown colour, usual structure, biliary tract is permeable. The pancreas is finely parted, of grey-pink colour, dense. Spleen is in the sizes of 12x8x3 cm, sluggish, a pulp is of dark-red colour. Adrenal glands are of leaf-like form. Kidneys are pale, of sluggish consistence, in the cut the borders of cortex and brain substances are clear. The mucous membrane of pelvis and of urinary tract is smooth, lustrous, pale. The uterus is dense, small, mucous membrane is of pale pink colour.

Results of histologic examination: The stomach – the mucous membrane is atrophied, areas of mucous and submucous membrane are necrotically changed, diffuse sclerosis and fibrosis of the stomach wall, growth of connective tissues in mucous and submucous membranes, cellular infiltration.

Gullet – growth of fibrous tissue in the mucous membrane, the atrophy of the mucous membrane, histiocytic infiltration.

Liver – fatty dystrophy of hepatocytes, atrophy changes in parenchyma, venous plethora.

Kidneys – dystrophic changes in nephrotelis, venous plethora, atrophy changes.

Heart – dystrophic changes in cardiomyocytes, signs of brown atrophy of cardiac muscle.

#### **THE AUTOPSY REPORT № 4**

- Medical establishment – regional hospital.
- Admitted to hospital – F. P. P.

- Branch – surgical.
- The case record – № 33/5445.
- The attending physician – I. B. G.
- Name of the death – B. G. S.
- Age – 85 years old.
- Occupation – the collective farmer (pensioner).
- Date of admission – 23.12.1994 at 8–00.
- Date of death – 23.12.1994 about 23–00.
- Stay at hospital – 15 hours.
- Date of autopsy – 24.12.1994.

Brief extract from the case record. The patient was admitted in an urgent order with complaints of bleeding from the direct gut, signs of the stomach-intestinal bleeding, ischemia, acute cardiovascular and respiratory insufficiency. Disease began suddenly, and death came due to pulmonary edema and heart insufficiency.

The clinical diagnosis 23.12.1994: cancer of direct gut, III group, IV stage. Bleeding is from direct gut: CVI, IDH. Atherosclerotic cardiosclerosis. RI–II stage. Pneumosclerosis.

#### ***The data of the autopsy***

The corpse of the old man is of correct structure of the body, subalimentation. Integument and visible mucous membrane are pale. Cadaveric rigidity is poorly expressed. Bones of the skull are unbroken. The dura mater is a little strained, its sinuses are free. The pia mater is transparent, thin, moderately plethoric. Brain substance is pale, lustrous. Pleural cavities are free. Peritoneum is of grey colour, dim, serous exudation is present in a cavity up to 200 ml. The mucous membrane of the larynx, trachea, main bronchi is smooth, lustrous, in the gleam–mucous sputum. Lungs are a little bit enlarged, of grey–pink colour, in the cut are friable, plethoric, from the surface foamy serous-hemorrhagic liquid flows down. Aorta is narrowed due to atherosclerotic patches with ulcers and petrification, especially in the peritoneal compartment.

Coronary arteries are very dense, thickened along the full length due to atheromatous patches. Lumen of coronary arteries is narrowed up to 50 %. Epicardium is lustrous, with moderate fat deposit under it. Heart size is 11x10x6x8 cm. Thickness of the left ventricle wall is of 2 cm, of right one – 0.5 cm. The cavity of pericardium contains 150 ml of transparent yellowish liquid. Leaves of pericardium are smooth. There are pink-yellow clots of blood in cavities of heart, wet and elastic. Heart valves are thin, lustrous and smooth. Heart muscle is brown-red, dense, penetrated with plenty of grey-white layers of connective tissue. The gullet is not narrowed. The mucous membrane is in longitudinal folds. Under mucous membrane are visible the expanded veins of the gullet. The stomach is not expanded, in the lumen is small amount of liquid which looks like a coffee mixture, there are defects of the mucous membrane – 0.1–0.3 cm. The duodenum is without special features. In the lumen of the thin and thick guts is bloody liquid. Rectal veins are acute enlarged. Gall bladder is of the usual form and sizes, in the cavity – dark-olive gall. The liver sizes are 24x18x8x4 cm. The surface is a little bit humped, the borders are rounded, firm at palpation. In the cut – granular, dry, of grey-brown colour, its picture looks like a nutmeg. Pancreas is of 21x3x5x2 cm, is not strained, middle lobed, with layers of adipose tissue, of grey-pink colour. The capsule is not strained. Spleen sizes are 14x8x4 cm, the pulp is sluggish, of dark-red colour. The scrape from the surface is moderate. Lymph nodes are not enlarged. Renal tissue is moderately developed. Kidneys sizes are 11x5x4 cm each one. Fibrous capsules are easily removed and uncover a finely humped surface of kidneys of grey-pink colour. The parenchyma is pale and anemic. In the cut the cortical layer and medullary layer are clearly differentiated. In the left kidney in the cortical layer the cavity (cyst) is in the size of 2x1.5 cm, is filled with a transparent liquid. The

mucous membrane of kidneys and the ureters is of pale-grey colour.

The bladder is empty. Adrenal glands are of the triangular form, the sizes are 4x1.5x0.5 cm each one. The border of cortical and medullary layers is clear; the thyroid gland is of the usual sizes, pale-red, of colloidal form in the cut.

Results of histologic examination: liver – hydropic and fatty dystrophy of hepatocytes, expansion of portal septum, growth of connective tissues, formation of atypical particles.

The gullet – varicose veins.

The stomach – varicose veins, haemorrhages, erosion of the mucous membrane.

Lungs – venous engorgement, in alveoli is serous exudation, haemorrhages, growth of connective tissues.

The heart – diffuse cardiosclerosis, atherosclerotic changes in coronary vessels.

Aortic wall – atheromatous changes of intima, media, cellular infiltration, calcareous infiltration.

Direct gut – varicose expansion of veins of the mucous membrane, the haemorrhage.

### **THE AUTOPSY REPORT №5**

- Medical establishment – city hospital.
- Admitted to the hospital – by emergency team to the first surgical branch.
- The case record – № 39/4564.
- Name of the dead – V. C. I.
- Age – 80 years old.
- Date of admission – 29.11.1994.
- Date of death – 07.12.1994.
- Stay at hospital – 9 days.
- Date of autopsy – 07.12.1994.

Brief extract from the case record. The patient was

admitted in an urgent order to the surgical branch of city hospital with complaints of acute pains in the right hypochondrium. Gangrenous cholecystitis was suspected, so the cholecystectomy was performed on 29.11.1994. The postoperative period proceeded hardly and the patient died from peritonitis.

The clinical diagnosis: acute gangrenous cholecystitis.

Complication: diffuse peritonitis, secondary acute pancreatitis.

Accompanying disease: IHD. Atherosclerotic cardiovascular sclerosis. Cerebral atherosclerosis. Pneumosclerosis.

### ***The data of the autopsy***

The corpse of the old woman is of correct structure of the body, well-nourished. Integuments and visible mucous membranes are pale, with yellowish shade. On the anterior peritoneal wall from the xiphisternum to navel is a postoperative scar in length of 20 cm. In the right iliac area – a postoperative cut in length of 12 cm. The drainage tube is taken out through this cut. There is also a drainage tube in the left iliac area, in the right and left hypochondrium. Right supraclavicular vein is catheterized. Cadaveric rigidity is poorly expressed. Bones of the skull are unbroken. Pleural cavities are empty. Peritoneum is of grey colour, dim, with numerous fibrinous-purulent layers. There is up to 100 ml of fibrinous-purulent exudation in the peritoneal cavity. Intestinal loops of guts are covered with fibrinous-purulent weights. The postoperative seams hold well. In stomach – up to 400 ml of liquids which looks like coffee ground, in the lumen of small intestine – bloody contents. On posterior wall of the duodenum in the descending compartment is the ulcer of the wall in diameter up to 3 cm, with dense cylinder-like edges. At the bottom of the ulcer – defect and erosional vessels. The liver is in the sizes of 21x14x6x3 cm, the surface is smooth, in the cut are numerous fields of grey-yellow colour without clear

borders. The surface of liver is dry, of brown colour. Pancreas sizes are 20x3x1.5 cm, is not misshapen, middle lobed, with layers of a adipose tissue, of grey-pink colour. The capsule is not strained. Spleen is in the sizes of 13x6x4 cm; the pulp is sluggish, of dark red colour. The scrape from the surface is moderate. Lymph nodes are not enlarged. Kidneys are moderately developed. They are in the size of 10x5x4 cm each one. Fibrous capsules are easily removed and uncover smooth surface of kidneys of grey-pink colour. Parenchyma is pale and there is lack of blood in it. Borders between cortical and medullary layers are clearly differentiated. The mucous membrane of pelvis and ureter is pale pink. The urinary bladder is empty. The intima of aorta is with atherosclerotic patches along the full length. Coronary veins are sulcated, dense, the lumen is narrowed due to atherosclerotic patches. Epicardium is lustrous, with excessive fat deposit. Heart is in the size of 11x10x6 cm. Heart chambers are a little stretched. Thickness of the left ventricle wall is 1.6 cm, of the right one – 0.4 cm. Leaves of pericardium are smooth. Heart valves are not modified. The cardiac muscle is of brown colour, sluggish, with layers of grey colour. Lungs are plethoric, of pink colour, of the usual sizes, from the surface of the cut at compression flows a foamy hemorrhagic liquid in small amount. The adrenal glands are macroscopically within the limits of norm.

Results of histologic examination: the duodenum wall – chronic ulcer with signs of aggravation of inflammation, with erosion of vessels.

The gallbladder wall – gangrenous necrotic changes with acute inflammation.

Liver – necrobiotic changes of hepatocytes, inflammatory infiltration, engorgement of gall in biliary tract.

Pancreas – sclerosis and lipomatosis of parenchyma.

Heart – diffuse sclerosis, dystrophic changes in cardiomyocytes.

Wall of peritoneum – purulent-fibrinous infiltration.

### **THE AUTOPSY REPORT № 6**

- Medical establishment – the 1st city hospital.
- Admitted to the hospital – F. M. S.
- Therapeutics branch.
- The case record – № 34456.
- Name of the dead – B. N. R.
- Date of admission – 20.09.94.
- Date of death – 27.09.94.
- Date of autopsy – 27.09.94.

Brief extract from the case record: the patient was admitted with exudative pleurisy, cardiac asthma attacks, fever. The symptoms of cardiovascular insufficiency manifested despite treatment, death came.

The clinical diagnosis: IHD, atherosclerotic cardio-sclerosis. Cardiac asthma attacks. Double exudative pleurisy. Chronic pulmonary-heart insufficiency. Pulmonary edema.

#### ***The data of the autopsy***

The corpse of the woman is of correct structure of the body, satisfactory nourishment. Skin and visible mucous membranes are pale, with cyanotic shade. Cadaveric rigidity is poorly expressed. Cadaveric spots are of cyanotic-crimson colour, located on the rear surface of the body and extremities. The peritoneal cavity contains up to 950 ml of yellowish liquid with hemorrhagic shade. There are numerous grey nodules in diameter from 0.2 cm to 0,7 cm on the surface of peritoneum. Pleural cavities contain up to 800 ml of the similar liquid. Leaves of the pleura are also with grayish nodules. Heart is in the sizes of 10x7x4x2 cm. Myocardium is of dark brown colour in the cut, sluggish, with grey layers. Heart valves and the large vessels are not modified. The aorta and coronary vessels are with numerous atherosclerotic patches which narrow the lumen of the vessels. The mucous membrane of

larynx, trachea, bronchi is swollen, of pale pink colour. Lungs are friable, of pale pink colour, from the surface of the cut flows a great amount of foamy and hemorrhagic liquid. The mucous membrane of the gullet, a stomach, intestine is without visible macroscopical changes. The liver is in the sizes of 24x11x10x8 cm, of sluggish consistence, of brown colour in the cut. Biliary tract is permeable. The gallbladder contains moderate quantity of dark-olive bile. Its mucous membrane is velvety. Pancreas is large lobed, of grey-pink colour in the cut. The spleen is enlarged, in the cut of dark-cherry colour, of sluggish consistence. Kidneys are of the usual size, capsules are easily removed. The surface of kidneys is smooth, the border of layers is clear, parenchyma is plethoric, of sluggish consistence. The mucous membrane of ureter is smooth, pale. The uterus is not enlarged, in the lumen are dark-red weights, endometrium is hypertrophic. Both ovaries are enlarged in diameter up to 8 cm, gibbous, of red colour in the cut, motley, with haemorrhages, grey areas and nidus of necrosis. Adrenal glands are leaf-like forms with typical structure. Bones of the skull are unbroken. Cerebrum membranes are without visible macroscopical changes. Substance of the brain is of pale pink colour with clear borders between white and grey substance.

The data of histologic examination: lungs – plethora, serous fluid in alveoli.

Heart – dystrophic changes of cardiomyocytes, nidal sclerosis.

Ovaries – growth of atypical glandular cells with pathologic mitosis, infiltrative growth, hemorrhages, necrotic changes.

Liver – fatty dystrophy of hepatocytes, venous plethora.

Kidneys – granular dystrophy in nephrotely.

Wall of peritoneum – growth of atypical glandular cells, general cellular infiltration.

## THE AUTOPSY REPORT № 7

- Medical establishment – regional children's hospital.
- Was delivered to hospital by ambulance.
- Name of the dead – S. O. V.
- Age – 5 years old.
- Place of residence – Ternopol.
- Date of admission – 20.03.90 about 20–50.
- Date of death – 22. 03.1990 about 19–45.

Brief extract from the case record. The boy had a fit of coughing during the meal (ate a cherry plum). He was delivered by ambulance with suspicion on aspiration of extraneous thing. At tracheobronchoscopy (in 20 minutes after delivery) was injured the left bronchus with development of left sided pneumothorax. The drainage of pleural cavity by Bulan was immediately performed. Subcutaneous emphysema grew. The drainage of retrosternal space. 21.03.90 about 15–00 the operation was performed – suturing the left main bronchus rupture, left sided bilobectomy. During the operation – cardiac arrest occurred. After the operation he didn't regain the consciousness. 22.03.1990 about 19–45 the boy died.

Admission diagnosis: aspiration of extraneous thing.

The clinical diagnosis: the basic disease – extraneous thing of bronchial tubes. Complications – double aspiration pneumonia. Pulmonary edema. Brain edema.

Accompanying diseases – left bronchus rupture. Left sided pneumothorax. Subcutaneous mediastinal emphysema. Condition after operation of bronchus suturing – left sided bilobectomy. Deep hypoxic encephalopathy. Cerebral coma.

### *The data of the autopsy*

The corpse is of correct structure of the body, satisfactory nourishment. The skin and visible mucous membranes are pale, located on rear surface of the body and extremities. On the anterior surface of the thorax from left on skin the operating cross-cut at the level of 5 intercostal space is

visible, sewed up with 16 silk nodal sutures. On rear axillary line from the left, below the operating cut, the polyvinyl tube in diameter of 0.5 cm penetrates in to the pleural cavity; the drainage tube is sewed up with three sutures. At palpation of the skin in the region of the thorax and peritoneum appears crepitation. At dissection of tissue with knife crunching is heard.

Internal examination. There is about 20–30 ml of transparent pink liquid in the left pleural cavity. Left lung is collapsed. On the medial pleura are three nodal sutures over the root of lung which there are clots. Tongue is without visible changes. The mucous membrane of pharynx is moderately congested, clear. The mucous membrane of the gullet is in longitudinal folds pale. The mucous membrane of trachea and large bronchial tubes is moderately congested, clear, damages from extraneous thing are not revealed. The sutures of stump of the left lower lobed bronchus hold tissue well. The mucous membrane of bronchial tubes of right lung is congested, covered with slime and pus. Right lung is of dark-red colour along the full length. From surface of the cut dark dense bloody liquid flows, tissue of right lung is compressed. At compression from bronchial tubes appear drops of yellow pus. Adrenal glands are of the usual sizes, with clear border between layers. Kidneys are in the sizes of 8x4x2.5 cm each one, capsules are easily removed, tissue of kidneys is sluggish, borders of layers are clear. The cavity of pericardium contains 20 ml of transparent liquid of yellowish colour. Epicardium and pericardium are smooth, lustrous. Heart is in size of 7x6x4 cm. Behind the way of coronary arteries dot haemorrhages are revealed. Heart cavities contain the mixed clots. Thickness of the wall of right heart ventricle is 0.3 cm, of the left – 1 cm. Endocardium and valves are clean, thin, transparent. Myocardium is strained, of red - brown colour. The intima of aorta and the large vessels is without visible

changes. The stomach is of the usual sizes and form, its mucous membrane is folded. In the cavity of stomach the small amount of liquid of dark-brown colour is visible. The mucous membrane of the gut is without visible changes; in the lumen is normal content. Pancreas is of pale-pink colour, large lobed, of the usual sizes. The liver is in the size of 15x11x9x7 cm, its capsule is smooth, tissue is sluggish, of pale-brown colour, clay. The gallbladder is without visible changes. The spleen is in size of 7x6x3 cm, the pulp is of dark-red colour with moderate scrape. Damages of the soft tissue of the head are not revealed, bones of the skull are unbroken. The dura mater is strained, the vessels of piamater – are congested. Brain tissue is pasty, swollen. In the region of cerebellar tonsil the ligature mark is visible from squeezing of medulla into great occipital foramen. In the cut of the brain, borders of layers are clear. Ependyma of brain ventricles is intact, smooth, moist, pale.

### **THE AUTOPSY REPORT № 8**

- Name – K. I. V.
- Age – 29 years old.
- Place of residence – Sumy.
- Place of death: branch of detoxication of Sumy city hospital №15.
- Date of death – 30.09.1999.
- Date of autopsy – 01.10.99.

Brief extract from the case record. The corpse of woman, 29 years, is of correct structure of the body, satisfactory nourishment. Thickness of subcutaneous adipose layer at the level of the navel 1–2 cm, sternum 1.0 cm. On the skin of forearm are numerous linear scars, in antecubital fossae are traces from injections. On the right upper arm is tattoo – the international sign of drug addict, in the region of right subclavian veins – the puncture, through which catheter is inserted. In the area of buttocks is the exfoliation of

epidermis in the sizes of 2x3 cm. Along the other length integuments are intact. There is purulent content in the left sternoclavicular joint. There is 500 ml of yellowish liquid with impurity of fibrin in the pleural cavity. The left pleural cavity is completely obliterated. Visceral pleura of right lung is covered with numerous; of the left lung – dense fibrous intergrowth. The peritoneal cavity is empty, peritoneum is smooth, lustrous. Mucous membrane of larynx, trachea and the main bronchi dim with haemorrhages, in the lumen is purulent sputum. Lungs are non-uniformly pneumatic: right lung is compressed along the full length especially in rear lower compartments where are two nidi of the triangular form in the sizes of 4x5 cm and 3x2 cm of red-brown colour in the center of which are vessels with thrombi. Along the other length – the lung is dim, in the cut a plenty of muddy liquid flows out, surface is of grey colour. The left lung is compressed along the full length, in the cut a plenty of muddy liquid also flows out. Main pulmonary trunks contain dark-red thrombotic weights. The lumen of aorta, great vessels is wide; the intima is smooth, lustrous. Kidneys arteries are without features. Heart is a little bit enlarged in sizes, mainly due to the left compartments. Thickness of the left ventricle wall – 1.5 cm, of the right – 0.3 cm. There is 50 ml of transparent liquid in the cavity of pericardium, pericardium is smooth, lustrous. In the cavity of right ventricle the clots are mixed. On the valves of tricuspid valves are numerous polypous layers of grey-yellow colour which are located as conglomerations which accumulating one on another. Other valves are smooth, lustrous. Myocardium is sluggish, dim, brownish-cyanotic. The gullet is not narrowed, the mucous membrane is longitudinal-folded, in the lower compartments is cyanotic. The stomach contents are in small amount, coloured by gall, the mucous membrane is smooth. There is liquid contents in intestine, the mucous membrane is grey-

cyanotic, folded. The liver is enlarged, the size is 29x27x11 cm, surface is smooth with rounded edges. It is sluggish in the cut, of yellowish-brown colour. The bladder is of the usual form and sizes, in the lumen – dark-olive gall. Biliary tract and extrahepatic biliary tract are freely permeable. The pancreas is not strained, middle lobed, greyish-pink. The spleen is greatly enlarged, its sizes are 18x11x4 cm, the capsule is strained, the pulp is sluggish, spreads, of dark red colour. The scrape from surface is in great amount. Lymph nodes of all groups are a little bit enlarged, soft, pink. Adipose tissue of kidneys is moderately developed. Kidneys are of the usual sizes, the fibrous capsule is easily removed. The surface is red-cyanotic, dim, parenchyma is pale, with a muddy swelling, borders of layers are not clear. There is muddy content in the lumen of pelvis, mucous membrane is with dot haemorrhages dim. The urinary bladder is without features. The uterus is in the size of 12x14x5 cm, on the uterine cervix – catgut seams. In the cavity the endometrium is lustrous, on the posterior wall – a friable red-brown spot. Ovaries are in the sizes of 2.5x1.5 cm, with a yellow body, fallopian tubes are without features. The adrenal glands are of leaf-like forms, without visible changes. Thyroid gland is a little bit enlarged, fine-grained, pink-cyanotic. Bones of the skull are unbroken. The dura mater is a little strained, moderately plethoric. The pia mater is swollen, transparent. Sinuses of the dura mater are free. Sulci and convolutions are smooth, the border between grey and white substance is clear. Substance of the brain is sluggish, plethoric. Lateral ventricles contain a small amount of transparent liquor. Arteries of the base of brain are thin-walled.

#### Results of histologic examination

Lungs – parenchyma is non-uniformly pneumatic, in the lumen of majority of alveoli – purulent-hemorrhagic exudation,

microbial colonies. Vessels are enlarged, with leukocytal thrombi, purulent destroyed walls. Bronchial epithelium is exfoliated. There is hemosiderin in alveoli and between interalveolar septum. There is deposit of fibrin on pleura.

The heart – valves of right ventricle (tricuspid) in the condition of necrosis, with great amount of thrombotic weights which contain microbial colonies. Cardiomyocytes are in the condition of granular dystrophy. Diffuse lymphatic-histiocytic infiltration of myocardium.

The spleen – there is accumulation of segmentonuclear leukocytes which are destroyed, proliferation of reticuloendothelial cells, the nidi of myelosis, great amount of plasmatic cells in the pulp.

Lymph nodes – catarrh of sinuses with exfoliation of reticular cells, the nidi of myelosis, plethora.

Liver – granular, fatty dystrophy of hepatocytes, periportal – lymphatic-histiocytic infiltration of stroma.

Pancreas, adrenal glands are of usual structure.

Brain – perivascular, pericellular brain edema, plethora, capillary stases.

The uterus – endometrium in the condition of organization, the vessels are plethoric, in the region of attachment of placenta – fibrinoid necrosis.

Fallopian tubes – plethora.

Ovaries – a yellow body, follicular cysts.

### **The discussion of the main provisions.**

## **THEME 4**

### ***Autopsy of the dead child. Features of the clinical-anatomical analysis and the organization of autopsies in pediatric practice***

**Motivation:** modern achievements and improvements of pathoanatomical service for children in Ukraine testify about

essential changes in the profile of childhood diseases and child death rate. It demands from the doctors the knowledge of morphological manifestation of the basic nosologic forms of diseases which occur in perinatology and pediatrics. Besides, the morphology of pathological processes in children is closely connected with age features which directly depend on constant stature changes and development of the child which are frequently destroyed under influence of genetic and environment factors. It causes the development of new pathological processes, the interpretation of which causes considerable difficulties. So, it demands joint participation of pathologist and pediatricist in autopsy.

**Aim:** to study features and technique of carrying out the autopsy of the dead child, fetus, newborn child and registration of the pathoanatomical documentation in the case of death connected with a perinatologic pathology.

**The task:** *to know* the peculiarities of autopsy of dead fetus, newborn, and child. *To learn* to define morphological manifestations of complications of the basic diseases in pediatric practice. *To be able* to carry out the clinical-anatomical analysis, to formulate the pathoanatomical diagnosis, to work out the medical certificate of death, to cipher death rate in neonatal and pediatric practice according to ICD-X.

### **Lesson equipment**

1. The autopsy report.
2. The medical certificate of death.
3. ICD-X.
4. The addition “I” (Regulations about the order of autopsy of fetuses born in the result of miscarriage in weight from 500 g and more in terms from 22 weeks of pregnancy irrespective of the newborn or stillborn died in the perinatal period).
5. The addition “Ж” (Regulations about the order of autopsy in

- treatment-and-prophylactic establishments).
6. The addition “H” (Regulations about carrying out the clinical-pathoanatomical analysis of fatal outcomes).
  7. The addition “P” (Regulations about pathoanatomical examination of the dead).
  8. The addition “C” (the Instructions about peculiarities and the order of autopsy of children of early age, the newborn, the stillborn, fetuses born in the result of miscarriage).
  9. The sectional set for autopsy of the dead.
  10. Body of a dead fetus, newborn, a child.
  11. Educational autopsy reports.
  12. Clinical-anatomical epicrisis.

#### ***A material for pre-auditorium work***

1. Repeat the contents of the addition “Ж” under the order № 81 MH of Ukraine
2. Repeat the contents of the addition “P” under the order № 81
3. Repeat the contents of the addition “H” under the order № 81.
4. Learn the contents of the addition “I” under the order № 81.

### **REGULATIONS**

#### ***about the order of autopsy of fetuses born in the result of miscarriage, the weight of which is from 500 g and more in terms from 22 weeks of pregnancy irrespective whether they were born dead or alive in the perinatal period***

To autopsy and registration in the report of pathoanatomical examination are subjected all the newborn died in medical establishments irrespective of the weight and length, and how much time after birth the manifestation of life were observed in them, and also the stillborn in weight of 1000 g and more and the length of body of which is more than 30 cm, fetuses born in the result of miscarriage in weight from

500 g and more in terms more than 22 weeks of pregnancy and irrespective whether they were born dead or alive. In case of autopsy of fetuses born in the result of miscarriage they are registered in the report of pathoanatomical autopsy, the medical certificate of perinatal death is not drawn up. Secundines are referred together with fetus and registered as biopsy material. The results of examination are sent to medical establishment.

The head physician of the maternity hospital provides autopsy of the stillborn and dead newborn, their delivery to the pathoanatomical bureau (branch) not later than 12 hours after birth of stillborn or death of newborn. The stillborn is referred with history of fetal growth and clinical epicrisis. The stillborn is sent to pathoanatomical branch together with secundines. The secundines of the newborn are also referred to pathoanatomical examination if they have symptoms of intrauterine diseases, especially if there is a suspicion on the intrauterine infection. In all cases they are registered as biopsy material.

The head of pathoanatomical branch provides microscopic examination of autopsy material of the newborn and secundines.

The head physician and the head of the pathoanatomical branch conduct necessary virologic and bacteriological examination of material of stillborn autopsy, died newborn and secundines, using for this corresponding laboratories at the given medical establishment or sanitary and epidemiological station.

In case of sudden death of children which were not registered in a dispensary, outside of a medical establishments, their corpses are subjected to forensic-medical autopsy. The pathologist can be involved into the advisory help by appointment of the head of the forensic-medical examinations. In case of sudden death of children which were registered in

the dispensary, their corpses are dissected by pathologist.

For unification of registration of the pathoanatomical diagnosis of perinatally died the results of fetal and newborn autopsies and pathoanatomical examination of secundines are only used. The clinical data about mother's pathology during pregnancy and delivery are not included into pathoanatomical diagnosis. They are necessarily fixed in the pathoanatomical epicrisis and in the medical certificate of death.

The medical certificate of perinatal death or preliminary perinatal medical certificate of death, the pathoanatomical diagnosis and the report (card) of pathoanatomical examination are drawn up by the pathologist in the day of autopsy.

**To study the contents of the addition “C” under the order № 81.**

**THE INSTRUCTION**

***about peculiarities and the order autopsy of children of early age, the newborn, the stillborn, fetuses born in the result of miscarriage and placentae***

At anatomical examination of children's corpses of early age, newborn, stillborn and fetuses at autopsy of the skull it is necessary to keep undamaged sinuses of dura mater. Having separated skin of the head with sharp scissors the ends of which are bent under the angle, the aperture in the region of lambdoid suture is made and on the horizontal line the section of parietal and frontal bones together with dura mater is carried out. Having reached to the middle of the frontal bone, the ends of scissors are turned back and one dissects frontal and parietal bones along frontal and saggital suture on distance of 1 cm from the last.

Then the section passes on a lambdoid suture up to the aperture made earlier in it. The same section is made from another side then in the middle of the skull the bone plate in

width about 1.5–2 cm along saggital suture with a crescent process of dura mater. Carefully moving aside each hemisphere of the brain, tent of cerebellum and the crescent process are attentively examined, because in these places the rupture and haemorrhages occur in consequence of birth trauma. Having removed each hemisphere the tent of cerebellum is cut near the edge of pyramid of the temporal bone and the brain stem is extracted together with cerebellum and medulla. There are different methods of autopsy of the skull which provide avoiding artificial posthumous damages of its content.

The spinal column is examined in all cases for estimation of its stretching. It is estimated by extraordinary mobility of vertebrae in cervical and thoracic compartments along the longitudinal axis and also haemorrhages into anterior longitudinal brace of corresponding interspine disk. The canal of vertebra is dissected not from the side of the spine, as in adults, but in front after removal of organocomplex. For this one separates the bodies of the III and IV vertebrae, inserts into the vertebral canal the branches of the pointed scissors curved on a plane, and one dissects the vertebral arches from both sides. After removal of vertebral bodies, the epidural space, spinal roots and intervertebral nodes are examined, then the spinal cord is extracted and examined along the full length.

At dissection of the anterior wall of peritoneum for preservation of the integrity of umbilical vessels the middle section comes to the end at 1–1.5 cm above the umbilical ring. From here two sections pass in the direction of the internal third part of inguinal folds. At superducting the skin-muscular triangle which was formed, the umbilical vein stretches. It is dissected with longitudinal section up to the hilum of liver. Umbilical arteries which are located on each side, are examined on cross-section. At suspicion on a possible umbilical sepsis, from the content of each vessel or from the scrape from the surface of intima the smears for bacterial

(bacterioscopic) examination are made. Umbilical vessels for histologic examination are taken in all cases.

The lower epiphysis of the hip is necessarily examined on longitudinal sections where the cores of ossification are marked and the condition of the line of cartilaginous ossification between epiphysis and diaphysis is determined.

Corpses of fetuses born in result of miscarriage in weight from 500 g and more, of the newborn, stillborn and children who died directly after delivery, are delivered to the pathoanatomical bureau (branch) together with secundines. At examination of secundines, their integrity, weight, form, place of separation of umbilical cord, its diameter and length are marked. Histologic examination of membranes, umbilical cord and placenta (membrane – 1–2 scraps, umbilical cord – 2–3 scraps, placenta – 6–12 scraps from different regions) are necessarily carried out.

### **Repeat the structure of the autopsy report and clinical-anatomical epicrisis**

### **Recollect complications, the reasons of death in the perinatal period and at the basic diseases in pediatric practice**

#### ***Questions for self-checking from theoretical part of the lesson***

1. Rules and requirements to the writing of the report of pathoanatomical autopsy of the dead child and the fetus.
2. Peculiarities of autopsy technique of the dead fetus, newborn, child.
3. Peculiarities of the clinical-anatomical analysis in case of death of fetus, newborn, child.
4. Peculiarities of enciphering of children's pathology and death rate according to the X international classification.

5. Peculiarities of drawing up the pathoanatomical diagnosis and the medical certificate of death in case of perinatal death of the fetus or newborn.

*Algorithm of the auditorium work*

1. Take part in autopsy.
2. Discuss clinical-anatomical peculiarities of a concrete case of dissection on a lesson.
3. Carry out clinical-anatomical comparison of perinatal and children's pathology.
4. Carry out the clinical-anatomical analysis of diseases which ended lethally because of lifetime misdiagnosis and wrong treatment.
5. The clinical-anatomical analysis of diseases, the fatal outcomes of which are connected with the untimely diagnosis and ineffective treatment.
6. The clinical-anatomical analysis of diseases which ended lethally because of wrong medical actions.
7. The clinical-anatomical analysis of diseases which ended lethally because of complications of surgical treatment.
8. The clinical-anatomical analysis of diseases the fatal outcomes of which were caused by medical pathology.
9. Drawing up the pathoanatomical diagnosis, clinical-anatomical epicrisis, filling in the medical certificate of death in all abovementioned cases, and also in mentioned below situational tasks.
10. Give answers to situational tasks.
11. Discussion of main provisions of the theme.

## THEME 5

*The role of pathoanatomical service in the control over quality of treatment-and-prophylactic work. The organisation of work of medical-control commissions (MCC) and clinical-pathoanatomical conferences*

**Motivation:** clinical-pathoanatomical conference is one of the basic methods of scientific-practical work of medical staff. It plays the most important role in the improvement of diagnostic and medical work in medical establishments.

**Aim:** acquire main provisions of carrying out MCC and clinical-anatomical conferences.

**The task:** *to know* basic tasks of MCC and clinical-pathoanatomical conferences. *To learn* the basic rules and principles of the organization of holding the clinical-pathoanatomical conferences. *To be able* to assess divergences of clinical and pathoanatomical diagnoses.

### Lesson equipment

1. The addition “K” (Regulations about the order of the organization and holding the clinical-pathoanatomical conferences in treatment-and-prophylactic establishments).
2. The addition “H”, item 2 (the Organization and the order of work of medical-control commission (MCC)).
3. Educational autopsy reports.

### The material for pre-auditorium work

Learn the contents of the addition “K” under the order № 81.

## REGULATIONS

*about the order of the organization and holding the clinical-pathoanatomical conferences in treatment-and-prophylactic establishments*

The basic tasks of clinical-pathoanatomical conferences: the improvement of professional skills of doctors

of treatment-and-prophylactic establishments, improvement of quality of clinical diagnostics and treatment of patients by means of the general discussion and the analysis of clinic-pathoanatomical data; revealing of the reasons and sources of mistakes in diagnostics and treatment at all stages of medical care, lack of work of organizational character, timeliness of hospitalization in the work of auxiliary services (radiological, laboratory, functional diagnostics, etc.).

On clinical-pathoanatomical conference are discussed:

- all cases of divergences of clinical and pathoanatomical diagnoses;
- all supervisors who have scientific-practical interest;
- unusual courses of disease;
- cases of medicamentous diseases and medicamentous patomorphosis of diseases;
- cases of death of patients after surgical, diagnostic and therapeutic interventions, especially those patients who were hospitalized urgently;
- acute infectious diseases;
- cases of late diagnostics, difficult diseases for diagnostics, unclear cases which demand the general discussion.

On one of the conferences the annual report of the head of the pathoanatomical bureau (the head of children's pathoanatomical branch) is discussed in which data about lethality the analysis of diagnostics quality and lack of medical care at all stages of treatment of the patient should be submitted.

Clinical-pathoanatomical conference should determine the reasons of divergences of clinical and pathoanatomical diagnoses, taking into consideration the next positions:

1. Disease was not recognized at the previous stages because in the given medical establishment putting of correct diagnosis was impossible because of condition of the patient, prevalence of pathological process, short duration of his stay in the given establishment.

2. Disease was not recognized in the given medical establishment in connection with absence of necessary and accessible examinations; thus it is necessary to take into account that correct diagnostics unessentially finally affected disease outcomes, but the correct diagnosis could be and should be established.

3. Wrong diagnostics caused erroneous medical actions which appeared decisive in lethal outcome of disease.

Only the 1st and the 2nd categories of the divergence of clinical and pathoanatomical diagnoses have the direct attitude to the medical establishment where the patient died. The 1st category of divergence of diagnoses concerns those treatment-and-prophylactic establishment which gave medical care to the patient in early terms of disease and before his hospitalization in treatment-and-prophylactic establishment in which he died. Discussion of this group of divergences should be transferred to these medical establishments or the medical personnel of the last should be present at the conference at medical establishment where the patient died.

All doctors of the given treatment-and-prophylactic establishment and also doctors of those treatment-and-prophylactic establishment which took part in examination and treatment of the patient on previous stages are obliged to be present at clinical-pathoanatomical conferences.

Clinical-pathoanatomical conferences are held according to plan, in working hours, not oftener than once a month.

In the big hospitals except for general conferences should be held in groups of corresponding profile branches.

The agenda of the next pathoanatomical conference is conducted to all doctors of medical establishment not later than 7 days before the conference. The preparation of clinical-pathoanatomical conference is made by the assistant of the head physician on a medical part and the head of the

pathoanatomical bureau.

The head of pathoanatomical branch, the administration of medical establishment have no right to cancel discussion of the case offered by the head of the pathoanatomical bureau.

For holding clinical-pathoanatomical conference by the head of the medical establishment two chairmen (the clinical physician and the head of the pathoanatomical bureau) and also the opponent from the most qualified doctors (the therapist or the pediatricist, the surgeon, the pathologist and others) are appointed.

For conducting the report of conference two constant secretaries from structure of medical collective are appointed.

It is expedient to limit the agenda of conference to discussion of one supervisor.

Cases which are subjected to discussion, are reported by attending physicians, the pathologist who carried out autopsy who analyzed it according to a medical card of the inpatient (for maternity hospitals – history of delivery, history of newborn growth) the quality of examinations, conducting medical documentations, and then are discussed by the participants of the conference, including doctors of other specialization who participated in diagnostics of disease.

The administration of the treatment-and-prophylactic establishments on the basis of material, conclusions and offers of clinical-pathoanatomical conference develops and carries out measures for prevention and liquidations of the defects, admitted in the organization and providing medical care to the patient.

At comparison of diagnoses, the diagnosis which is written down on the first page of the case record is only taken into account; in the clinical and pathoanatomical diagnosis the basic disease, complications and accompanying disease should be precisely distinguished. On the title page and in epicrisis of case record the date of putting the diagnosis of each disease

and their complications are necessarily specified.

The basic disease is considered that disease which is directly or through complications is closely connected to it and caused death of the patient. According to international classification (ICD) in clinical and pathoanatomical diagnoses only respective nosologic unit should be specified as the basic disease. The clinical diagnosis cannot be changed for transfer of syndromes or symptoms of disease. The anatomic essence of disease should be in the pathoanatomical diagnosis.

At holding the clinical-pathoanatomical conferences it is necessary to take into account that in modern conditions, especially for people of old age, frequently there can be two or more diseases which develop independently one from another or are in difficult pathogenetic mutual relations.

It is difficult to determine the basic disease among these diseases. Such situation caused the necessity to introduce into diagnostic definitions such concepts and terms as competing, united, background disease, combined the basic disease. Arrangement in the diagnosis and epicrisis of revealed diseases according to these concepts allows to understand more precisely their interdependence and influence of one on another, and also the value of each disease and their complications in genesis of death; thus it is possible to think of expediency, full value and timeliness of medical-diagnostic measures.

Those pathological processes which pathogenetically are directly connected with the basic disease, though in some cases can have another etiology (for example: purulent meningitis at the purulent otitis, peritonitis at perforative stomach ulcer, etc.) are referred.

In cases when the death came not from the basic disease or complication but from application of medical or even diagnostic procedures and manipulations, the special headings are provided in ICD. For example, headings

ICD E936 (accidents and complications which occur in surgical and other kinds of treatment), № 960–979 (the adverse complications connected with introduction of medicines and other medicamentous substances), № 997 (the specific complications connected with some surgical interventions), №998 (other complications because of medical interventions).

At discussion of such cases at conference such variants of their analysis are possible.

Medical action which caused death of the patient, was used under the erroneous diagnosis.

In similar cases this action (operative, diagnostic intervention, reactions on medicines, radiant energy and others) is put in the diagnosis on the place of the basic diseases in accordance with headings ICD E930–E936.

Medical action which caused death of the patient, was accomplished according to the certain indications, but performed incorrectly, as they led to death of the patient (for example, the blood transfusion of another group, over cooled, gemolised; overdosed of strong remedies, serious at operative intervention, carrying out the narcosis, etc.).

Similar cases usually become a subject of forensic-medical examinations. As well as in the previous category, action which led to death of the patient in the diagnosis should be on the place of the basic disease.

Medical action which caused death of the patient, was adequate, that is applied on the basis of correctly established indications and is performed correctly. Its adverse influence was connected with individual intolerance or heavy condition of the patient and neglect of disease which could not be determined before. In similar cases the action which led to death of the patient may be formally included into one of above mentioned headings of ICD and must be included into group of complications. However, complications of such character should be distinguished from general group of the revealed

diseases which developed in the result of natural course of disease. Thus, at the analysis it is necessary to distinguish two categories of complications – “complications of disease” and “complications from treatment”. The processes connected to medical actions if they led to death of the patient should be also included into the last group.

The task of clinical-pathoanatomical conference also includes revealing the reasons of divergences of clinical and pathoanatomical diagnoses. The divergence under the basic clinical and pathoanatomical diagnoses is considered to be convergence of diagnoses:

- by a nosology principle, for example, the diagnosis of tuberculosis instead of cancer of lungs;
- by etiology, for example, the diagnosis of tubercular meningitis instead of meningococcus;
- by localization of pathological process, for example, the diagnosis of stomach cancer, instead of pancreas cancer.

At the combined basic disease the absence or misdiagnosis of one of diseases is considered a divergence of clinical and pathoanatomical diagnoses.

Taking into account, that the clinical diagnosis should be not only correct, but also timely, all sectional supervisions at the divergence of clinical and pathoanatomical diagnoses are analyzed concerning timeliness of their establishment: materials of this analysis are discussed at clinical-pathoanatomical conferences, and must be put into reports of pathoanatomical branch.

Sources and the reasons of divergences of diagnoses can be objective and subjective. The objective reasons of the misdiagnosis are caused by short duration of stay of the patient in medical establishment, difficulties and impossibility of its examination in connection with a heavy condition, atypical developments and currents of process or insufficiently examined disease. The subjective reasons of erroneous

diagnostics are caused by the level of preparation and qualification of the doctor. At the analysis of these two categories of mistakes in each case are specified and allocated the concrete reasons of their occurrence (a heavy condition of the patient which does not allow to carry out his examination, atypical or asymptomatic course of disease, rareness of the disease, insufficient laboratory examinations, attention to the anamnesis, etc.). Short-term stay of the patient is considered to be his stay in medical establishment less than 24 hours.

Analyzing cases in which coincidence of two diagnoses took place, it is necessary to distinguish those ones, when the basic disease and fatal complications were recognized late, that stipulated untimeliness of carrying out of efficient treatment and the lethal outcome.

Thus, proceeding from tasks which must be solved on clinical-pathoanatomical conferences, it is necessary, that the analysis of assumed mistakes was basic, statements on them were not characterized as charging of concrete persons who have admitted those or another mistakes. The benefit for the patient and increase of doctor's qualification should be the basic purpose of carrying out of clinical-pathoanatomical comparison.

**To study the contents of item 2 of the addition “H” under the order № 81.**

### **POSITION**

#### ***about carrying out the clinical-anatomical analysis of fatal outcomes***

The organization and the order of work of medical-control commission (MCC).

The medical-supervisory commission (MCC, further the commission) is appointed for detailed and qualified ascertaining of circumstances and peculiarities of disease

course, direct reasons and the mechanism of death approach, lack of providing of medical care to the patient who died in the given medical establishment, and also in a polyclinic, at home or in region which belongs to the given medical establishment.

The head physician is responsible for the organization and state of work of the commission who annually determines the staff of the commission. The head of the commission, as a rule is appointed the deputy chief physician on medical part, permanent members – the main medical experts, the heads of the branches, the head of the branch of pathoanatomical bureau and one from attending physician-clinician as a secretary. The final staff of the commission is determined in the operative order depending on character of disease of the dead with participation or the doctor who carried out autopsy. Doctors, who participated in treatment of the patient, should not be appointed as members of the commission. The head of the commission is obliged to learn all necessary documentation which concerns the given case of death (the case record, an extract from the report of pathoanatomical examination of the dead and other materials), and to appoint a reviewer from the most qualified doctors of the treatment-and-prophylactic establishment. Materials from other medical establishments where the patient was earlier treated are requested if necessary.

The meeting of the commission is appointed in time not later than 15 days after death of the patient.

At the meeting of the commission brief reports of the attending physician, pathologist and the reviewer are if there were lacks of the pre-hospital period treatment. The report of meeting of the commission is kept by the secretary.

The attending physician is obliged to prove the diagnosis put to the patient, using results of his examination, to report, how disease developed, when and because of what reason complications occurred, which concrete measures and their results, were carried out in connection with it.

The pathologist reports the commission the pathoanatomical diagnosis and epicrisis, carries out comparison of clinical and pathoanatomical diagnoses on all headings, submits the information about revealed lacks of providing medical care and their reason.

The reviewer on the basis of studied medical documentation reports and represents the commission the written conclusion about timeliness of hospitalization of the patient, completeness of his examination, correctness of treatment at pre-hospital stage and at hospital period.

Comparing the clinical and pathoanatomical data, the reviewer establishes the concrete reasons of admitted mistakes, offers measures for their prevention in the future. In the case of divergence of ideas of the pathologist and the attending physician the reviewer proves one of them or offers his own, using for this the data of the scientific literature. He defines dependence of mistakes of the attending physician on all system of the organization of medical-diagnostic work in medical establishment, branch.

The commission is obliged to find out circumstances of occurrence of disease (trauma), peculiarities of its course, tanatogenesis, to determine quality of providing medical care, to develop concrete practical measures on elimination and prevention of revealed lacks.

At the analysis of medical care at pre-hospital stage the commission establishes:

- a condition of active revealing of patients and timeliness of the primary address of the patient for medical care;
- a full value of examination in a polyclinic, quality and timeliness of diagnostics, correctness of treatment;
- timeliness of hospitalization;
- correctness of transportation of the patient to medical establishment;
- quality of profound medical examinations and dispensary

supervision over patients in a hospital.

At analysis of medical care during the hospital period the commission establishes:

- completeness, groundness and timeliness of inspection of the patient in medical establishment;
- timeliness of the final diagnosis of disease, its completeness and correctness;
- groundness of medical assignments and operative interventions;
- correctness of carrying out medical procedures and surgical operations;
- adequacy of postoperative care of the patient;
- observance of sequence in diagnostics and treatment of the patient at all stages of hospitalization.

The quality of keeping of medical documentations is estimated by the commission according to each stage of hospitalization. Thus the attention is paid to professional literacy of medical records, completeness of display of complaints, anamnestic sheets, data objective examination, presence of records of the clearance sheet of the head of the branch and other officials; pre-operative epicrisis, postoperative diagnoses, condition of narcotic cards and cards of intensive therapy keeping.

At the end of the work the commission makes the act which is subscribed by all members of the commission.

In case of revealing by the commission of lacks of providing medical care in the act are necessarily underlined: the essence and character of lacks where they are admitted, surnames and names of doctors who admitted the defects how the lacks of medical care caused fatal outcome, and also concrete practical recommendations of the commission on elimination and prevention of the revealed lacks of medical-prophylactic work of hospital.

At revealing by the commission of lacks of providing

medical care which were admitted by doctors of other medical establishment the head of the commission sends to the address of corresponding head physician an extract from the act of the commission.

In case of divergence of ideas of members of the commission the repeat consideration of fatal case is appointed by the commission with participation of the main experts of regional, city branches of health protection.

**Acquaint with situational tasks (educational autopsy reports) and prepare for participation in business game as one of participants of clinical-pathoanatomical conference.**

*Questions for self-checking from the theoretical part of the lesson*

1. The history of holding the clinical-anatomical conferences.
2. Who organizes and holds clinical-anatomical conferences?
3. Tasks of clinical-anatomical conferences.
4. Principles and the order of the organization of clinical-anatomical conferences.
5. What cases are considered on clinical-anatomical conferences?
6. The main speakers on clinical-anatomical conferences.
7. What categories of the divergence of clinical and pathoanatomical diagnoses are established by clinical-anatomical conference?
8. The value of clinical-anatomical conferences in work of medical establishments.
9. Main principles of organization of MCC and its tasks.

*Algorithm of auditorium work*

1. Carrying out the business game “clinical-pathoanatomical conference”. The note: the theme of conference and participants are defined by the teacher.

2. The discussion of the basic results of carrying out the business game.

## **THEME 6**

### ***Biopsy examinations***

**Motivation:** biopsy examination takes important part in life-time diagnosis of various diseases. Any pathologically changed tissue excised during the operation must be histologically examined. Biopsy examination is especially expedient in oncological practice.

**Aim:** to learn the principal rules of carrying out the biopsy examination in medical establishments.

**The task:** *to know* the order of biopsy and operative material examination in medical establishments. *To learn* the principal rules of preparing of biopsy and operative materials for histological and cytological examinations. *To learn* how to evaluate the results of biopsy examination in various pathologic processes.

### **Lesson equipment**

1. Appendix 2 (Regulations on the order of biopsy and operative material examination (pathological examination)).
2. A set of micropreparations with various pathologic processes.
3. Operative materials for biopsy examination.

### **Material for pre-auditorium work**

Learn the content of the appendix to the order № 81.

## **REGULATIONS**

### ***on the order of biopsy and operative material examinations (pathohistological examination)***

All organs and tissues excised during the operation, and secundines, abortion scrapes performed in the department of

certain medical-prophylactic and medical establishment are subjected to pathohistological examination.

Pathohistological examinations are performed for defining exactlier and confirmation of clinical diagnosis, putting diagnosis in subclinical cases, diagnose the initial stages of a disease, inflammatory, hyperplastic and tumoral processes of various form and origin. Biopsy and operative material examinations allow judging the efficiency of operation, dynamics of pathological process; changes resulted in tissues or neoplasms as a result of treatment etc.

Objects which must be examined are delivered to the pathoanatomical bureau (department) immediately to ensure the timeliness of conclusions. It is not allowed to accumulate biopsy and operative material (scraping as well) in operating rooms. The operative material should be thoroughly marked: patient's surname, his initials, number of case report, the label is attached on the pot with the specimens. If several specimens of different patients are placed in one pot each of them is pleased info gauze and tied. The label from the dense paper, which is not sodden in liquid, is attached to the gauze. The surname and initials of a patient are written on the label with the pencil. If the specimen delivered from the department is unfit for examination (dried off, rotted, frozen) it is not taken and the head of the department is informed about this fact immediately.

A special blanc-order is filled for the examination of every specimen and is delivered to the pathoanatomical bureau (department). All columns of the blanc should be filled by a physical-clinician in that way the pathoanatomist, who will carry out the examination, has enough clinic information to evaluate morphological changes.

Besides clinical picture of the disease, there must be short information on anamnesis and treatment (common number of injected hypostatic, and hormonal preparations, the

character of radiation therapy, etc.) and macroscopic description of the preparation on the blanc.

If the blank-order is not filled in proper way, the head of the department of the pathoanatomical bureau informs the head of the clinical department, where the specimen was delivered. If such cases are repeated, he informs the head doctor of the hospital (the director of the establishment), assistant director on medical work.

It is strongly prohibited to divide the biopsy and operative material into parts and send to different pathoanatomical laboratories. In these cases morphological changes are typical for the process (cancer, tuberculosis and other diseases) may be revealed only in one part of the specimen, and correspondingly the results will be different. This may confuse the physician and cause harm to the patient.

The physician who prescribes the examination is responsible for delivery of the materials. It is delivered to the pathologic bureau (department) by someone from the hospital personnel. If the material cannot be sent at once after the operation for some reasons, the surgeon who performed the operation must ensure its proper fixation (in 10 % formalin solution) and preservation. If the patient died during the operation or just after it, the excised organs together with the dead body are delivered to the pathoanatomical bureau (department).

The personnel of the pathoanatomical bureau bears the responsibility for the proper reception and preservation of registration of taken and treated material.

A laboratory assistant of the pathoanatomical bureau receives the material delivered to the laboratory together with the blank-order. He check-up whether all columns are filled in completely and in a proper way and the correspondence of the received material to one indicated in the blanc.

Registration of biopsy and operative material is done by the laboratory assistant.

The 1st variant of registration: the registration book is introduced for every coming year. There are such columns in it: index number (number of examination is begun every year from the very beginning), the numbers correspond to the quantity of excised specimens from the object, data of receiving and data of examination the material, patient's full name, age the number of his/her case report, the object of studying, approximate clinical diagnosis, necessary clinical information about a patient, histologist description of the preparation and clinical diagnosis, the receipt.

The 2nd variant of registration: patient's passport data and corresponding number of examination are written on the clean blanc. The results of macroscopic and microscopic examinations are written using carbon-paper. The copy of conclusion is sent to the medical establishment and the original of the blanc is stitched and preserved in the ensures more efficient documentation, gives the possibility to generalize the results of biopsy work, to fill in all columns of the form in the pathoanatomical department expediently.

A pathologist carries out macroscopic examination of the material, chooses the methods of treatment, the ways of examination and the necessary kinds of staining. To employ a laboratory assistant for this work is strictly forbidden.

The regular ordinal number is given to every examination (bloc, piece), which is written on the label. The label is put into the pot with studied material on the bloc when running with paraffin or celandine and is written on histological preparations. On the microscopic slides under the examination, the number of two last figures of the examination in a year is painted out as a decimal fraction.

The examination of delivered specimens of tissue must be done in the following time:

- a) the urgent biopsy – not later than 20–25 min from the moment of material reception;
- b) diagnostic biopsy and operative material – for 4–5 days. The time of bone tissue treatment and biopsy, which requires additional methods of staining or consultations of highly skilled specialists, may be extended.

The copies of forms with the results of histological examination are sent to the clinical departments and must be placed into the case reports.

Archives of histological preparations and registration books are recommended to preserve for all time the pathoanatomical bureau (department) exists.

Depending on local conditions, histological preparations of vermiform processes, tonsils, scraping from uterine cavity after incomplete abortion are preserved for a year. When the term is over these preparations of benign and malignant tumors, tumor-like processes with suspicion on tumor growth and specific inflammation are preserved constantly. Cellodine blocks are preserved in the pots in 70 % alcoholic solution. There must be labels with the indicated numbers and the year of examination the pots. For long-term preservation, of the material run with cellodine, the latter is taken out of blocs, threaded together with the labels, on which the number and year of examination is indicated, and put into 70 % alcoholic solution. Paraffin blocs with corresponding marking are preserved in conditions, which prevent them from drying out (polyethylene knapsacks, cut off surface is run with paraffin). Macropreparations or their pieces are preserved in 10 % formalin solution for a year, and then they can be destroyed.

It is recommended to preserve brain tumor scraps, malignant tumors of soft tissue and tumors, which are seldom met, in 10 % formalin solution for all time the laboratory exists, if there are conditions for it.

Histological preparations or, if it is necessary – the archives of micropreparation, may be given to the patient or his relatives or medical establishment for consultation in another medical establishment under the condition of written request from it. The corresponding request is included into the registration book of histological examination (in accordance with the preparation number), and after return of these preparations, the record is crossed out. The medical establishment must return the preparations to the pathoanatomical bureau (department).

At carrying out the histological examination it is recommended the following; amount of examined material of scraps:

– uterine body cancer (uterine sarcoma, etc.): tumor 1–4; tumor border with unmodified tissues – 2; uterine cervix – 1; liver – 2; two tubes – 2; lymph nodes of parametric fiber – 3; myoma nodes (if there are some) – 2; total amount – 10–14 scraps.

– uterine cervix cancer: cervix tumor – 1; from uterine body – 1; two ovaries – 2; two tubes – 2; lymph nodes of parametric fiber – 3; myoma (if there are some) – 2; total amount – 11–15 scraps.

– benign processes in uterus (myoma, endometriosis, etc): uterus – 2; tubes – 2–4; ovaries – 2; paraovarian cysts – 1; total amount – 3–12 scraps.

– tumor of stomach: tumors – 1–4; tumor border with unmodified tissues – 1–2; lines of clipping, superior and inferior – 2; regional lymph nodes – 1–3; total amount – 8–14 scraps.

– ulcer of stomach: ulcer-margin, fundus – 1–3; stomach wall – 3; attached region – 1–2; regional lymph nodes – 3; total amount – 5–9 scraps.

- mammary gland: tumor – 1–4; tumor border with unchanged tissues – 1–2; tissue of mammary gland and attached regions – 2–3; lymph nodes (by groups) – 3; total amount – 7–4 scraps.
- tumors of soft tissues: tumor – 2–6; tumor border with attached tissues – 1–3; total amount – 3–9 scraps.
- lungs (tumor): tumor – 1–5; tumor border with unmodified tissues – 3; lung tissue with attached regions – 2–3; regional lymph nodes – 3; total amount – 8–15 scraps.
- lungs (purulent process): 3–9 scraps.
- intestine with lymph nodes: 3–6 scraps.
- gullet: scraps excised in esophagoscopy – all.
- excised gullet with lymph nodes: 3–5 scraps.
- thyroid gland: from every lobe – 1–2 scraps, in the case of nodular goiter – 1–2 scraps from each node; lymph nodes – 1–3; total amount – 6–10 scraps.
- tumors of ovaries (in the case of removal of the uterus with tubes): tumor scraps – 2–3; uterine tube – 1–2; from endometrium – 2–3; myoma nodes (if there are some) – 2–3; total amount – 8–13 scraps.
- larynx (tumor) – 2; lymph nodes – 2; total amount – 2–5 scraps.
- prostate: from every node – 1–2 or all scraps as scrape at sampling the material with the help of the method of transurethral electroresection.
- appendix is examined either as the whole by means of preparing the rolls or 1–3 scraps are excised from the most modified places and from the region, which is removed from the pathological process area.
- tonsils and lymph nodes, uterine cervix scraps, polyps and other tissues – every scrap is separately examined.
- uterine tubes in the case of extra uterine pregnancy – 1–3 scraps or more.
- gallbladder: 2–3 scraps from the wall or tumor, if there are lymph nodes – 3, total amount – 2–6 scraps.

- as to other organs and tissues 2–3 scraps are excised from tumors or the region, affected by the pathological process; in the case of simultaneous excision of lymph nodes are examined if there are no macroscopical signs of tumor in them.
- the material of scrapings, including the gynecological examination, aspiration and other kinds of biopsy, trepan biopsy, is completely examined.

Preparation order of biopsy, operative and sectional material for histological examination:

1. Tumors of skin are incised and excised in such way to give the possibility to evaluate changes in the centre and periphery of tumor and attached regions while examining the histological preparation.
2. Before examination the lungs are fixed for a day by means of insertion of fixative formalin solution into bronchus under pressure at the height of 25 cm above the level of the table. The lung is filled with formalin solution and covered with gauze or cotton wool. If there are tumors, the sections are made along the probe introduced into the bronchus. To histological examination as well are subjected not only the regions of tumor but also attached bronchi walls and lung parenchyma and also lymph nodes of lung root.
3. The fixation of the larynx is done in the open state. The plates along the larynx with pathological nidus and adjacent mucous membrane are excised.
4. The organs of gastroenteric tract are fixed after longitudinal section and smoothing on the cardboard. Pathological focal changes and condition of adjacent mucous membrane are described. In the scraps of gastric ulcer the search of malignancy is carried out, that's why it is necessary to examine greater number histological sections. In polyps the search of malignancy regions as ulcers indurations is carried out. In cases of stomach resection for excluding duodenum ulcer, in the

delivered preparation there may be the margin of this ulcer; it is necessary to examine the places of surgical intervention.

5. Appendix is dissected along or across in modified places. The content and modified regions of wall are examined.

6. Operatively excised ovaries or their parovarium are dissected with longitudinal sections.

7. Prostate is dissected with longitudinal section capturing the walls of urethra and gland capsules, the scraps are taken for examination. If there are tumor node (hyperplasia regions), then scraps together with the regions of attached gland tissue are excised out of them.

8. The regions of sectoral resection of mammary gland after palpation are dissected and examined. The size, density of nodes, content and state of walls of cysts are described. The regions of nodes with mottled pattern and walls of cysts are subjected to histological examination. In every case some scraps from pathologic nidus are excised. In the case of mammary gland total resection, it is separated from muscles, is many times dissected with parallel sections, perpendicularly to the skin. Cellular tissue in which lymph nodes are examined, is also dissected.

9. At extirpation of uterus with uterine appendages all excised organs including ovaries, tubes, uterine ligaments are examined irrespective of presence or absence of pathologic changes in them. Uterine is dissected with T-like section at the front. The uterus size, cervical canal length, thickness of mucous membrane and muscular layer are measured. Uterine cervix is dissected and examined parallelly to the cervical canal. In case of leiomyoma all revealed nodes irrespective of their quantity are examined. The material of conization of the cervix is wholly examined. Cystic tumors are dissected, in their walls are found ovaries scraps which are necessarily examined together with cyst wall in the regions of its density or villous growth. Dermoid cysts are fixed without dissection. After

removing of content the cyst head is examined. In teratomas not less than 4–5 scraps are examined to determine the character of possible tissue differentiation.

10. For fixation of hypophysis is dissected along the saggital line into two parts. One of them is histologically examined sin such a way that anterior and posterior lobes, the funnel of hypophysis were also captured. The other part is dissected into two equal parts along frontal line. Sections for microscopical examination are prepared along this line.

11. Thyroid gland is dissected into plates of 0.5 cm thick for preservation of connection between them or intact and fixed. For histological examination are taken:

- a) in diffuse goiter and torridities – scraps from every lobe and isthmus, and from any fibrosis foci and mosaic structure;
- b) in nodular gaiter – from all nodes necessarily with capsule and attached tissue, all areas of density are separately dissected.

12. Adrenal glands are dissected into plates of 0.2–0.3 cm thick with preservation of connection between them. For examination the samples in the region of hilus are excised. They must have renal and medullar substance. If there is tumor the samples are excised together with attached tissue.

13. Pancreas is dissected into plates of 0.5 cm with preservation of connection between them and fixed. For histological examination scraps from the centre and found with attached tissue are taken.

14. For liver and spleen examination tissue plates of 0.5 cm thick are excised along the organ and after fixation the scraps from the region of hilus and nearby capsule are taken, if there are pathology with attached tissue.

15. Before the fixation lymph nodes are dissected along curvature major. Material for examination is taken from hilus, centre of node and periphery with capsule.

16. Excised scraps of brain are dissected into plates of 0.5 cm. After fixation the scraps are excised from pathological modified regions on their border with unmodified tissue.

17. For bone examination the plates of 0.5–0.7 cm are sawn. In some time these plates are subjected to decalcification. It is necessary to saw bones taking into account pathological nidi (tumor nodes) and attached bone tissue. Soft tissue component of tumor is examined without decalcification.

### **Review of morphological (histological) manifestations of principal pathological processes**

#### **Questions for self-control from theoretical part of the lesson**

1. Determination of biopsy conception.
2. Kinds of biopsy.
3. Techniques of biopsy material taking.
4. The rules of biopsy material delivery to histological laboratory.
5. The term of biopsy preparations and answer.
6. For biopsy answer.
7. The rules of taking the material for biopsy examination in various diseases:
  - mammary gland pathology;
  - stomach pathology;
  - intestine pathology;
  - ovary pathology.
8. Examinations of usual biopsy.
9. Examination of urgent biopsy.
10. The rules and term of preservation of biopsy material.
11. Documentation of biopsy material.
12. Conservation and processing of examined material.
13. The rules of biopsy carrying out.
14. The biopsy importance in clinical diagnosis.

15. The stages of procession biopsy material processing.

### **Algorithm of auditorium work**

1. Take part in excision and preparation of operative and biopsy materials for histological examination.
2. Evaluate morphological manifestations of pathology in educational biopsy micropreparations.
3. Give answers to situational tasks.

### **TASK 1**

Carry out clinical morphological biopsy analysis using following data: E., 45-year-old, menstrual cycle is normal, suffers from chronic salpingitis, infertility. The objective examination revealed diffuse induration of the mammary gland. There is a focal induration of 5x2 cm under the nipple of the left mammary gland.

The results of needle biopsy: fibrocystic adenomatosis. The patient refused from the operation. In 3 months she addressed a doctor again because of enlargement of lymph nodes in the left supraclavicular region. The results of histological examination of lymph node: growth of atypical glandular structures with pathologic mitoses in epithelial cells.

### **TASK 2**

Carry out clinical morphological biopsy analysis according to all available data: N., 48-year-old, one normal delivery, 6 abortions. For 7 years she was suffering from colpitis and cervical erosion. Biopsy examination had not been carried out before.

The results of cytological examination: the smear from posterior vaginal vault contains superficial cells of stratified epithelium, a great number of leucocytes.

The results of histological examination of biopsy material of uterine cervix: squamous uncornified epithelium with pathologic mitoses, atypical cells, infiltration growth.

### **TASK 3**

Carry out clinical morphological biopsy analysis according to all available data: Sh., 38-year-old, she was suffering from conjunctivitis for a year. The treatment didn't give positive result. Clinical diagnosis: chronic conjunctivitis, blepharitis.

The results of histological examination: leukocyte infiltration in conjunctiva, formation of inflammatory granulomas with necrosis in the centre, giant macrophages – Pirogov-Langhans cells are met among lymphocytes, epithelia cells.

### **TASK 4**

Carry out clinical morphological biopsy analysis according to all available data: K., 24-year-old, in 5 months after delivery she felt worse, her temperature raised to 38 C°, she had coughing up blood. The patient expectorated a piece of dark-red loose tissue. Clinical diagnosis: double focal pneumonia. The result of histological examination of phlegm: a great quantity of cytotrophoblast with numerous atypical mitoses, absence of growth boundaries, absence of vessels, syncytium of polygonal form and size.

### **TASK 5**

Carry out clinical morphological biopsy analysis according to all available data F., 34-year-old, has chronic tonsillitis in anamnesis. The patient had enlarged cervical lymph nodes, asthenia, subfebrile temperature. Clinical diagnosis: chronic tonsillitis, nonspecific lymphadenitis.

The results of histological examination: the picture of lymph nodes is not clear, proliferation of young lymphoblasts, large and small Hodgkin's cells, giant multinuclear cells of Berezovsky-Sternberg's cells, focal sclerosis and hyalinosis.

### **TASK 6**

Carry out clinical morphological biopsy analysis according to all available data: in the patient D., 33-year-old in the right mammary gland on examination was revealed fibrocystic displasia of mammary gland.

The results of histological examination: growth of light atypical glandular large cells with numerous pathologic mitoses, intraductal growth without clear borders.

### **TASK 7**

Carry out clinical morphological biopsy analysis according to all available data: U., 58-year-old, suffers from stomach ulcer. It is known that ulcer is in the pyloric stomach compartment. The patient considerably lost weight for the last two months, he often vomitted spasms appeared. The skin is dry, grey. Clinical diagnosis: chronic stomach ulcer with malignancy. During the operation the tissue from the bottom of ulcer was taken for histological examination.

The results of histological examination: diffuse growth of fibrous tissue on the bottom of the ulcer and surrounding areas of stomach wall.

### **TASK 8**

Carry out clinical morphological biopsy analysis according to all available data: the patient C., 48-year-old, addressed a gynecologist with complainst of uterine bleeding, which is not connected with menstruation. For clearer identifying the diagnosis and method of treatment, scraping from the uterine was sent for histological examination.

The results of histological examination: growth of endometrial glands, change of their forms and size, regions of proliferation of epithelial cells, active reaction of the stroma. In some places the glands are sinuous and form cysts.

### **TASK 9**

Carry out clinical morphological biopsy analysis according to all available data: the patient G., 46-year-old, was suffering from stomach ulcer for 12 years.

He complained of pains in the region of stomach, much weight loss. Clinical diagnosis: chronic stomach ulcer in the stage of exacerbation.

The results of histological examination: on the bottom of ulcer are regions of fibrinoid necrosis, zonal cellular infiltration. Growth of atypical glandular epithelium with numerous pathologic mitoses can be seen near the margins of the ulcer in mucous membrane.

### **TASK 10**

Carry out clinical morphological biopsy analysis according to all available data: during the preventive examination the gynecologist revealed the signs of cervical erosion. The material was sent to the histological laboratory.

The results of histological examination: growth of glandular epithelium in the vaginal part of uterine cervix. Defects on the surface of mucous membrane are not revealed.

### **TASK 11**

Carry out clinical morphological biopsy analysis according to all available data: the patient A., 52-year-old, was suffering from ovarian-menstrual cycle violation for 4 years. A year ago she palpated the tumour in the left mammary gland. Clinical examination revealed: the tumor was dense, tuberous, its size was 3 – 8 cm, accreted densely with surrounding tissues.

For the last two months the patient noted hemorrhagic fluid discharge in small quantity from mammary gland nipple. Clinical diagnosis: fibrocystic mastopathy. examination

The results of cytological examination: atypical epithelial cells and blood elements were found.

Histologic instant diagnosis revealed fibrocystic fibroadenomatosis with proliferation: growth of atypical glandular epithelial structures with numerous pathologic mitoses, cellular atypism, infiltrative growth.

### **TASK 12**

Carry out clinical morphological biopsy analysis according to all available data: the patient N., 25-year-old, was admitted to the gynecological department on suspicion of extra-uterine pregnancy. Before the operation the patient was made diagnostic scraping from the uterine cavity.

The results of histologic examination: endometrial hyperplasia, blood clots, decidual tissue, chorionic villi.

### **TASK 13**

Carry out clinical morphological biopsy analysis according to all available data: patient A., 68-year old, was admitted to the surgical department with the diagnosis of rectum numerous polyposis. One polyp was excised during the operation and the material was sent for histologic examination.

The results of pathologoanatomical examination: glandular polyp. In 10 months the patient was admitted again to the surgical department. He complained of dyscheria, abdominal pain, weight loss, blood in feces.

Clinical diagnosis: rectum cancer with growth into neighbouring organs.

The results of histological examination: growth of glandular epithelium with numerous pathologic mitoses, infiltration growth.

### **TASK 14**

Carry out clinical morphological biopsy analysis according to all available data: the patient 48-year-old, was treated with lung lesion at dispensary X-ray examination revealed dark spot lungs with clear boundaries.

The results of cytological examination of phlegm: neutrophil leukocytes, single macrophages; atypical cells are not found.

The results of pathologoanatomical examination of biopsy material from the main left bronchus: squamous epithelium growth without signs of cornification with numerous pathologic mitoses of polygonal forms and sizes, epithelial cells with infiltrative growth.

### **TASK 15**

Carry out clinical morphological biopsy analysis according to all available data: the patient N., 26-year-old, was operated with acute appendicitis. Clinical diagnosis: acute phlegmonous appendicitis.

The results of histological examination: growth of basophilic structures with the signs of active proliferation, single pathologic mitoses, infiltrative growth.

### **TASK 16**

Carry out clinical morphological biopsy analysis according to all available data: the patient C., 49-year old, fibrogastoscopic examination with stomach ulcer was conducted. The scrap of tissue from the bottom of ulcer was taken for histological examination.

Clinical diagnosis: stomach ulcer.

The results of histological examination: growth of atypical glandular cricoid cells with numerous pathologic mitoses, infiltrative growth into the stomach wall.

### **TASK 17**

Carry out clinical morphological biopsy analysis according to all available data: the patient N., 22-year-old, was admitted to the in-patient department with the complaints of fever, weight loss, asthenia, enlargement of lymph cervical nodes.

Blood examination didn't reveal any deviation from the norm ESR – 49 mm/h.

X-ray examination of lungs revealed expansion of their hilus as a result of enlargement of lymph nodes. One of the cervical lymph nodes was taken for histological examination.

The results of histological examination: in the lymph node tissue granulomatous inflammation was revealed. This inflammation manifests as epithelioid cells, lymphocytes, Pirogov-Langhans' cells.

### **TASK 18**

Carry out clinical morphological biopsy analysis according to all available data: the patient N., 34-year-old, was admitted to the hospital with complaints of fever, weight loss, asthenia, enlargement of lymph cervical nodes.

Blood examination didn't reveal any deviation from the norm ESR – 58 mm/h.

X-ray examination of thoracic organs revealed enlargement of mediastinum lymph nodes. A cervical lymph node was sent for histological examination.

The results of histological examination of lymph nodes: the picture is not clear as a result of growth of atypical cells.

Навчальне видання

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## **БІОПСІЙНО-СЕКЦІЙНИЙ КУРС**

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