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**A.ROMANYUK**

# GENERAL PATHOLOGY

## Describe of the macropreparations

### PART 5

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Посібник містить коротке описання макропрепаратів з основних тем загальної патоморфології, що відповідає програмі, затвердженій МОЗ України і ЦМК з вищої медичної освіти. Для англomовних студентів вищих медичних навчальних закладів III-IV рівнів акредитації.

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## **Description's scheme of the macropreparations**

1. Name an organ or a tissue.
2. Pathology in organ or tissue.
3. Color of the organ or tissue.
4. Shape (round, abnormal, oval etc.) of the organ or tissue.
5. Size of the organ or tissue.
6. Consistence (dense, soft, flabby etc.) of the organ or tissue.
7. Surface (smooth, rough etc.) of the organ or tissue.
8. Condition on the section (homogeneous, layered etc.).
9. Cause of pathology in organ or tissue.
10. Complication of such pathology in organ or tissue.
11. Pathogenesis of such pathology in organ or tissue.
12. Clinical aspects of such pathology in organ or tissue.
13. Consequences of such pathology in organ or tissue.

## **Mark's criteria of the knowledge of the macropreparations**

5 (excellent) 1-13

4 (good) 1-9

3 (satisfactory) 1-5

## Case 1

*Morphology of intracellular and extracellular accumulation (uptake) of proteins, hydrocarbons and lipids.*

*Morphology of pathologic accumulation of endogenous and exogenous pigments.*

*Morphology of mineral metabolism disease*

1. Sago spleen.
2. Dercum's disease.
3. Muddy Edema of the kidney.
4. Coal-miner's lungs.
5. Pancreas obesity.
6. Verrucous endocarditis.
7. Sebaceous kidney and the obesity of kidney pelvis.
8. Biliary cirrhosis of liver.
9. Calculous cholecystitis.
10. Hyalinosis of spleen capsule.
11. Fatty dystrophy of liver (I stage).
12. Brown induration of the lung.
13. Aortic atherosclerosis.
14. Aortic atherosclerosis.
15. Obesity of the kidney.
16. Muddy Edema of the kidney with the excessive deposition of fat in pelvis.
17. Acute gastric ulcer.
18. Muddy Edema of kidney and Obesity of kidney.
19. Brown atrophy of the myocardium.
20. Amyloidosis of the kidney (white kidney ).
21. Fatty dystrophy of the liver (III stages).
22. Protein dystrophy of liver.
24. Stone of the gallblader.
25. Obesity of the heart.
28. Amyloidosis of the kindey with the obesity in the area of

the pelvises of the kidney.

**29. Atherosclerosis of the aorta with complication.**

**30. Obesity of the kidney under the urolithiasis.**

**31. Calculous cholecystitis.**

**1. Sago spleen** (amyloidosis of the spleen, primary stage) the organ is painted to grey, the spleen is diminished, dense texture. A focal deposition of pathological amyloid in follicles is noted.

**Causes of course:** disturbance of protein metabolism, that is observed after chronic diseases: chronic abscess (various localization), osteomyelitis bronchiectasis, chronic and destructive tuberculosis, myeloma, chroniosepsis and so on.

**Outcomes:** the function of organ is decreased, the areas of damage are substituted by the connective tissue.

**2. Dercum's disease.** Excessively developed deposition of neutral fat in subcutaneous fatty tissue. This is an example of local deposition of fat also named lipomatosa dolorosa - painful lipomas, there are lots of nervous fibres which are pressed by fat, and cause the syndrome of pain.

**3. Muddy Edema of the kidney.** An example of parenchymal protein dystrophy, when the surplus of protein granules is accumulated in nephrotelium. The organ is enlarged and of infirm consistency, there are light grey spots on the surface. In the sectional view: the picture of parenchyma is lost.

**Causes:** infectious disease, intoxication, hypoxia, illnesses of the kidney itself: glomerulonephritis, pyelonephritis and so on.

**Outcomes:** the functions of the kidney are decreased, under the condition of progressing dystrophical alterations turn to the destruction of the parenchyma and expansion of the connective tissue.

**4. Coal-miner's lungs.** An example of exogenous pigmentosis: coal dust is deposited in the lungs. The organ becomes dense with dark grey and black inclusions and the connective tissue expands. **In the sectional view:** focal depositions of coal dust and sclerotic alterations and intumescence of bronchial walls.

**Outcomes:** the function is decreased, flatus metabolism is aggravated in the result of sclerotic alterations, inflammations (tuberculosis) often accompany.

**5. Pancreas obesity.** An example of stromal lipidosis fat (neutral) is deposited in the stroma of the organ. Parenchyma is atrophied. In the sectional view: the expansion of adipose tissue and the diminution of the dimensions of pancreas parenchymatous structures can be seen.

**Outcomes:** both excretory and incretory functions are aggravated.

**6. Verrucous endocarditis.** This is an example of mesenchymal disproteinosis. The thickening of valves (mitral) is seen, there is a wart. The heart is enlarged, there are mucoid and fibrinoid swelling, hyalinosis and sclerosis.

**Causes:** the systemic disease of the connective tissue - rheumatism.

**Outcomes:** decreasing of function, formation of heart defect with the development of chronic cardiac insufficiency.

**7. Sebaceous kidney and the obesity of kidney pelvis.** The organ is enlarged, of infirm consistency, on the surface and on the cut it has sebaceous colour. The structure of the organ in the cut is disturbed, the border between cortical and medulla substance isn't discovered. Sebaceous kidney is an example of protein dystrophy - amyloidosis. Obesity of pelvis is a stromal fatty dystrophy with the deposition of neutral fat.

**Causes:** the same as in sago spleen.

**Causes of the obesity of pelvis:** hypoxia (chronic), chronic disease of kidney.

**Outcomes:** the function is decreased; the development of chronic renal failure.

**8. Biliary cirrhosis of liver.** The organ is enlarged, subtitle tuberosity on the surface is noted, there is a subtitle granulation on section. The tissue is yellow-greenish, it has a dense texture. Biliary cirrhosis of liver is the result of the disturbance of the endogenous pigments (bilirubin) metabolism.

**Causes:** jaundices of various genesis, the affections of the bile ductules: cholecystitis, cholangitis, cholangiocystitis, chololithiasis.

**Outcomes:** the function is decreased and the hepatic failure is developed; degeneration into malignant tumor.

**9. Calculous cholecystitis.** The gallbladder is enlarged, the wall is thickened up to 0,8 cm at the expanse of the inflammation of the mucous membrane and the expansion of the connective tissue. Calculous cholecystitis means the deformation of the gallbladder wall owing to the stones in the lumen. According to their chemical structure the stones may be: bilirubins, biliverdins, cholesterols, the stones of biliary acids, phosphates, mixed and so on.

**Outcomes:** the development of the mechanical jaundice, progression of the inflammatory changes in the wall of the gallbladder with transition to the surrounding tissues.

**10. Hyalinosis of spleen capsule.** This is an example of stromal disproteinosis which is developed after protracted inflammatory changes in the capsule of spleen.

The capsule is thickened, grey focal depositions are present. Preparation № 27 spleen is decreased, massive depositions of

hyalinus in capsule are noted. The capsule is much thickened. This may be observed as the stages of one process: № 10 - primary stage, № 27 - final stage.

**Outcome:** the function is decreased with the atrophy of the organ and sclerotic alterations.

**11. Fatty dystrophy of liver (I stage).** This is an example of lipomatosis with the deposition of neutral fats in hepatocytes. The smooth surface with the focals of yellow colour on the surface and on the cut, infirm consistency, and the areas of yellow colour are explained by focal depositions of fat.

**Causes:** 1-hypoxia (chronic), chronic disease of respiration system, chronic disease of blood (anemia), 2-intoxication, 3-infectious diseases; 4-endocrinous and metabolic disturbances. I stage - it means that the deposition of drops of neutral fat without mesenchymal and inflammatory reaction takes place in hepatocytes.

**Outcomes:** 1-under the condition of the liquidation of cause fat may be resorpted. 2-protracted acting of the cause develops the next stage of damage.

**12. Brown induration of the lung.** The lungs are brown, enlarged, dense. The disease is developed in the case of the disturbanse of blood removal from the lung, that is observed at: 1.heart defects ( the left half); 2. ischemic heart disease, cardiosclerosis; 3.myocarditis, pericarditis. In the case of brown induration of the lung hemosiderin is deposed in parenchyma. It is formed when erythrocytes are destructed beyond the borders of vessel channel. The induration is explained by the expansion of the connective tissue in the result of the disturbanse of parenchyma by hemosiderin, hypoxia, disturbanse of lymph removal.

**Outcomes:** the function is decreased, respiratory



insufficiency is developed, joined in with inflammatory process in lungs.

**13. Aortic atherosclerosis.** This is an example of the disturbance of cholesterol metabolism and its esters metabolism - stromal lipidosis. The intima of the aorta is tuberculous with numerous orange spots (the preparation is painted by sudan),- deposition of lipids; ulcerations and hemorrhages are present.

**14. Aortic atherosclerosis** On the surface of the intima numerous yellow spots are seen, they set out over the surface for 2- 3 mm - this is a deposition of lipids.

**Outcomes:** in the of progressing complications such as ulceration, hemorrhages, calcinosis and rupture of the wall are developed.

**15. Obesity of the kidney.** An example of mesenchymal stromal lipidosis with deposition of neutral fat. The organ is enlarged, infirm, the excessive deposition of fat in the gate on the pelvis of the kidney is seen on the surface and on the cut.

**Causes:** hypoxia, intoxication, chronic disease of kidneys.

**Outcomes:** decreased function with the development of renal insufficiency.

**16. Muddy Edema of the kidney with the excessive deposition of fat in pelvis.**

This is an example of parenchymal disproteinosis, the deposition of fat - mesenchymal lipidosis.

The kidney is enlarged, infirm, the presense of grey- yellow areas is noted, and a tuberosity on the surface as well. **Causes:** Taking into account the tuberosity, this is a chronic disease of kidneys, chronic hypoxia.

**Outcomes:** decreased function with the development of

chronic renal insufficiency.

**17. Acute gastric ulcer.** Atrophy of the mucous membrane, the area of defect 1 x 1 cm and the distended veins in submucous tissue are seen. Acute gastric ulcer may result in hemorrhage owing to erosion of the vessel with the accumulation of the saline acid hematin in stomach, it causes «a coffee grounds» vomiting.

**18. Muddy Edema of kidney and Obesity of kidney.** An example of parenchymal protein dystrophy, when the excess of protein granules is deposited in nephrothelium. The organ is enlarged, its consistency is infirm, there are light- grey spots on the surface. **On the section:** the picture of parenchyma is lost.

**Causes:** Taking into account the tuberosity, this is a chronic disease of kidneys, chronic hypoxia, infectious diseases, intoxication, illnesses of the kidney itself: glomerulonephritis, pyelonephritis and so on.

**Outcomes:** decreased functions of the kidney with the development of chronic renal insufficiency, under the condition of progressing the dystrophical alterations turn to the destruction of parenchyma and expansion of the connective tissue. This is an example of parenchymal disproteinosis, the deposition of fat- mesenchymal lipidosis. The kidney is enlarged, infirm, the presence of grey- yellow areas and also a tuberosity on the surface is noted.

**19. Brown atrophy of the myocardium.** An example of deposition of lipofuscin in the tissues of the heart.

**Causes:** pathologic development under cachexy, general consumption of the organism. The organ is infirm, the chambers are long-drawn, on the surface the deposition of brown pigment is seen, and the whole organ receives the

corresponding colouring.

**Outcomes:** the function is decreased and cardiac insufficiency is developed.

**20. Amyloidosis of the kidney (white kidney).** This is an example of mesenchymal disproteinosis with the deposition of anomalous protein- amyloid. The organ is enlarged, infirm, on the surface and on the section it is grey, the border between cortical and medulla substance is absent.

**Causes:** the disturbance of protein metabolism, which is observed after chronic diseases: chronic abscess (various localization), osteomyelite, bronchiectasis, chronic and destructive tuberculosis, myeloma, chroniosepsis and so on.

**Outcomes:** the development of renal insufficiency.

**21. Fatty dystrophy of the liver (III stages).** The liver is enlarged, it has dense consistency, subtile granulation of yellowish colour on the surface and in the cut is noted. The preparation represents the final stage of the parenchymal lipidosis, when the greater part of hepatocells is substituted by fatty inclusions with the atrophy of nucleuses, destructive changes in hepatocells, mesenchymal cellular inflammatory reaction and with the expansion of the connective tissue.

**Outcomes:** the formation of cirrhosis and hepatic insufficiency.

**22. Protein dystrophy of liver.** An example of parenchymal disproteinosis with the deposition of protein granules in hepatocytes. The liver is enlarged, infirm, grey-yellow.

**Causes:** hypoxia, intoxication, infectious diseases (virus hepatitis), metabolic-endocrinous disturbances.

**Outcomes:** the function is decreased, in the case of progression of the destructive

alterations and afterwards cirrhosis is developed.

**24. Stone of the gallbladder.** The solitary stone 1,5 x 10 cm in size, which corresponds to the shape of the gallbladder. The stone confirms the disturbance of mineral metabolism in organism and is accompanied with the development of the chololithiasis. In the cut the colour is light- yellow, its surface is dark- brown, olive. According to their chemical structure the stones may be: stones of biliary acids, biliary pigments, bilirubins and biliverdins, cholesterols, calcareous stones, mixed ones.

**Outcomes:** chololithiasis, calculous cholecystitis, decubitus of the wall of the gall bladder, mechanical jaundice.

**25. Obesity of the heart.** An example of mesenchymal lipidosis with the deposition of neutral fat under the epicardium between muscular fibers. The heart is enlarged, infirm, deposition of fat mainly in the right half of the heart.

**Outcomes:** the function is decreased with the development of chronic cardiac insufficiency.

**28. Amyloidosis of the kidney with the obesity in the area of the pelvises of the kidney.** Different stages of the amyloidosis of the kidney are represented: white kidney, sebaceous kidney.

**29. Atherosclerosis of the aorta with complication.** The intima is covered with numerous atherosclerotic patches (stromal lipidosis with the deposition of cholesterolin and its ethers), with the areas of ulceration and by-wall thrombuses. In the result of progressing of atherosclerosis with the destructive changes in the wall it may be rupture of the wall or the formation of aneurysm.

**30. Obesity of the kidney under the urolithiasis.** The kidney is enlarged, its surface is tuberos, in the cut there is an atrophy of parenchyma, numerous cavities are filled with stones. The parenchyma under the atrophy is substituted by fatty tissue. An example of local lipidosis with the deposition of neutral fat.

**31. Calculous cholecystitis.** The gallbladder is enlarged 5x15 cm, filled with stones, the wall is thickened up to 0,8 cm at the expanse of the inflammation of the mucous membrane and the expansion of the connective tissue. Calculous cholecystitis means the deformation of the gallbladder wall owing to the stones in the lumen. According to their chemical structure the stones may be: bilirubins, biliverdins, cholesterols, the stones of biliary acids, phosphates, mixed and so on.

**Outcomes:** the development of the mechanical jaundice, progression of the inflammatory changes in the wall of the gallbladder with transition to the surrounding tissues.

## Case 2

*Regeneration, adaptation and compensation processes:  
hyperplasia, hypertrophy, atrophy, organization*

1. Gangrene of the lower extremity.
2. Gangrene of the small intestine.
3. Myocardial infarction.
4. Hemorrhagic pulmanory infarction.
5. Necroses of the bowel wall.
6. Red infarction of the intestine.
7. Concentric hypertrophy of myocardium.
8. Transmural myocardial Infarction.
9. Myocardial infarction with the by-wall thrombuses.

10. White infarction with hemorrhagic areola in liver.
11. Secondary contracted kidney.
12. Hydronephrosis.
13. Hypertrophy of the myocardium of the left heart ventricle.
14. Bullous emphysema of the lung.
15. Internal hydrocephalus.
16. Fungous kidney.
18. Hypertrophy of the spleen. (Splenomegaly).
19. Pancreonecrosis.
- 20, 23. Atrophy of the spleen.
21. Hypertrophic vegetation of the mucous membranes of the intestine with the formation of polyps.
22. The bones of the skull with the features of atrophy.
24. Gastric ulcer with the features of substitution.
25. Multiple infarctions of the spleen.
26. Subendocardial myocardial infarction.
27. Gangrene of the foot and intestine.
28. Cysts in liver.
29. Hydrocephalus.
30. Hydronephrosis.
- 38, 7. Tonogenous hypertrophy (concentrated hypertrophy of the heart).
40. Necrotic nephrosis.

**1. Gangrene of the lower extremity.** An example of necrosis of black colour. Black coloured areas of mortification are seen on the foot. The extremity is enlarged, swelled, with exfoliation of the skin (moist gangrene).

**Causes:** disturbance of blood supply, getting of the anaerobic infection, operation of thermic factors (burns, frostbites).

**2. Gangrene of the small intestine.** The area of the intestine is black and has clear-cut borders. **Causes:** disturbance of blood

supply (thrombosis of mesenteric arteries).

**Outcomes:** destruction of the wall with the development of peritonitis.

**3. Myocardial infarction.** Black coloured area of the heart with the rupture of the wall is seen. This is an example of ischemic necrosis which occurs under the necrosis or the spasm of coronary artery.

**Outcomes:** an extensive transmural infarction takes place, it leads to the miomalation and death.

**4. Hemorrhagic pulmanory infarction.** The lung is dark-red. In the cut the red

thrombuses are seen in the lumen of the pulmonary artery. These thrombuses became the cause of pulmanory infarction. The organ is enlarged, dense.

**Outcomes:** the development of the respirative incompetence, the perifocal pneumonia; formation and development of the tumorous process in the area of the cicatrice.

**5. Necroses of the bowel wall.** The atrophy of the mucous membrane is seen, the bowel wall has focal black changes - the areas of necrosis, which are developed in the result of the disturbance of the blood supply.

**Outcomes:** perforations with the development of peritonitis.

**6. Red infarction of the intestine.** It is developed in the result of the thrombosis of mesenteric arteries. Red infarction arises in the intestine in connection with the peculiarities of blood supply, namely the numerous anastomosises between the branches of mesenteric arteries. The dark-red painted bowel wall is seen, the intestine itself is deformed.

**Outcomes:** red infarction results to the development of

gangrene, perforation of the bowel wall and peritonitis.

**7. Concentric hypertrophy of myocardium.** The represented cut of the left heart ventricle wall is thickened (2 cm). The lumen of the heart ventricle cavity is narrowed. Concentric hypertrophy is a display of compensative hypertrophy, which develops under the hypertension in the systemic circulation, heart defects (aorta valve). The acting of the cardiac muscle is intensified, the fibres grow thick.

**Outcomes:** without abolition of the cause decompensation of the heart or eccentric hypertrophy is developed.

**7. Transmural myocardial Infarction.** There can be seen: the area of the left heart ventricle wall is painted dark-red colour, the damage of cardiac muscle spreads through the whole thickness of the wall.

**Causes:** disturbance of blood supply in the result of the thrombosis or the spasm of coronary artery.

**Outcomes:** finishes mainly with miomalation (rupture of the wall of the heart). It may be the expansion of the connective tissue, the disturbance of rhythm with heart block.

**9. Myocardial infarction with the by-wall thrombuses.** There can be seen: the colouring of the wall of the left heart ventricle to dark, that spreads on the middle and inner layer of the heart wall. On the surface of the endocardium the deposition of thrombus masses.

**Causes:** the disturbance of the endocardium causes there is deposition of tissue thrombokinase, which activizes and sets going the mechanism of thrombus formation.

**Outcomes:** by-wall thrombuses may be the source of thromboembolism in the systemic circulation.



**10. White infarction with hemorrhagic areola in liver.** In the cut there are: the areas of grey colour, which are dissociated from the sound tissue by the dark areola.

**Causes:** thrombosis of the branches of liver artery.

**Outcomes:** formation of cicatrice (expansion of the connective tissue).

**11. Secondary contracted kidney.** The kidney has dense consistency, tuberos, with numerous hollows and protuberances. The connective tissue replaces damaged mortificated parenchyma. The protuberances are the areas of hypertrophy of preserved parenchymal structures of the kidney.

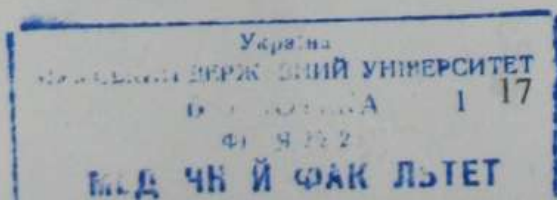
**Causes:** after the illnesses of kidney: glomerulonephritis and pyelonephritis.

**Outcomes:** decrease of the function, development of insufficiency.

**12. Hydronephrosis.** The kidney is enlarged with isolated bladders. The surface is tuberos at the expanse of the hypertrophy of preserved parenchymal structures and the atrophy of the surrounding areas. The pelvis of the kidney is extended. Under hydronephrosis one can observe the atrophy of the parenchyma because of the pressure of urine, which is accumulated in the lumen of the pelvis in consequence of the obstruction of the exit by the stone.

**Outcomes:** the function is decreased, inflammation is developed.

**13. Hypertrophy of the myocardium of the left heart ventricle.** The enlargement of the wall of the left heart ventricle and hypertrophy of the papilla muscle. The enlargement of the cavity of the left heart ventricle. There is a myogenic hypertrophy that is the enlargement of the muscle and the extending of the cavity. Such hypertrophy develops at



primary stages of decompensation of the heart. It is connected with the factor that the muscle can't bear enlarged loading and the heart cavity enlarges. Dystrophic changes develop in cardiomyocytes. The muscle of the heart is infirm and extended.

**Outcomes:** cardiac insufficiency.

**14. Bullous emphysema of the lung.** There is a big bladder in the upper part of the lung.

**Cause:** appears in the result of the excessive accumulation of the air in the tissue of the lung. It is observed under the small bronchus being obstructed by mucus. The atrophy of interalveolar membranes and their rupture is observed. Because of the air pressure local atrophy takes place.

**15. Internal hydrocephalus.** The enlarged lateral ventricles of the cerebral hemisphere are seen in consequence of the accumulation of liquor, it results in the atrophy of the parenchyma of the cerebrum.

**Causes:** complicated liquor circulation, which appears under inflammations (meningitis, encephalitis) or congenital structure of its openings. Local atrophy from pressure takes place.

**Outcomes:** the function is decreased.

**16. Fungous kidney.** The kidney is tuberosus on the surface, there are remains of the features of embryonal development. It is seen in the cut that the parenchyma is represented as fungus with numerous small cavities. The regular structure of the kidney is absent. The border between cortical and medulla substances isn't seen.

**Causes:** disturbance of prenatal development of kidney absence of the connection between the tubules and the glomerules. In the result primary urine is accumulated in the glomerules, the urine presses them and causes atrophy. This is

an example of local prenatal atrophy from pressure.

**Outcomes:** renal insufficiency.

**18. Hypertrophy of the spleen. (Splénomegaly).** The spleen is enlarged in 3-4 times, dark-cherrish colour, dense. These changes appears under the diseases of blood: anemia, leucosis, hemoblastosis. The enlargement of spleen is a result of compensatory hypertrophic changes.

**Outcomes:** the function is increased, it becomes an organ of sanguification, sometimes it may be a rupture at the insignificant injury.

**19. Pancreonecrosis.** The areas of grey colour in the parenchyma of the organ are seen, it's a focality of fatty necroses or fatty degeneration of the pancreas.

**Causes:** acute destructive pancreatitis, which are accompanied by the excretions of the excessive quantity of ferments. The example of direct necrosis takes place.

**Outcomes:** the areas of necrosis are substituted by the connective tissue, the function is decreased, acquired diabetes mellitus is observed.

**20, 23. Atrophy of the spleen.** It can be seen that the spleen is decreased, the capsule and the parenchyma are contracted.

**Causes:** deterioration of blood supply, age-related changes. The parenchyma is atrophied and substituted by the connective tissue, the function is decreased.

**21. Hypertrophic vegetation of the mucous membranes of the intestine with the formation of polyps.** The polyps can be seen on the mucous membrane.

**Causes:** chronic irritation of the mucous membrane by different factors.

**Outcomes:** dangerous by there possibility of the degeneration into malignant tumor - adenocarcinoma. Under the diagnosis of this process it is necessary to the carry out an operation.

**22. The bones of the skull with the features of atrophy.** The bones are thinned and shine through.

**Causes:** accumulation of fluid in the skull cavity (hydrocephalus). This is an example of atrophy because of presure.

**24. Gastric ulcer with the features of substitution.** This is an example of

reparative deficient regeneration. One can see the deffect of the mucous and submucous membrane and of the muscular layer, which reaches the neighbouring organ - pancreas. Deficient regeneration is explained by the following: in consequence of the disturbance of muscular and external layers regeneration can't take place completely because these structures can't regenerate - muscular fibres don't regenerate.

**Outcomes:** expansion of connective tissue.

**25. Multiple infarctions of the spleen.** The areas of altered colour are seen. They are grey and dark-red. The infarctions of the spleen appear under formation of thrombuses in the small branches of the artery of the spleen. There is vascular necrosis.

**Outcomes:** expansion of connective tissue, sclerosis.

**26. Subendocardial myocardial infarction.** The cut of the left ventricle is seen in which the inner wall has altered dark-brown colouring. This is an area of necrotic disturbance on the result of the blood supply stopping.

**Outcomes:** 1) parietal thrombuses in the heart cavity, thomboembolism in the systemic circulation. 2) development of cardiosclerosis, cardiac insufficiency. This is an example of

vascular necrosis.

**27. Gangrene of the foot and intestine.** The alteration of colouring of the foot and of the intestine (black colour) is seen.

**Causes:** disturbance of blood supply of these tissues. Stopping of blood supply in consequence of the formation of thrombuses in the arteries. The cause of black colouring of tissues: under necrosis the tissues, contacting with external air, the formation of sulfid of ferrum is observed.

**Outcomes:** under the gangrene of the intestine peritonitis is developed. Under the gangrene a foot-intoxication with toxic disturbance of parenchymatous organs (parenchymal dystrophy and their insufficiency).

**28. Cysts in liver.** Numerous cysts are seen under the capsule of the liver. This is an example of atrophy because of pressure. There is a thinning and an atrophy of parenchyma under the obstruction of bile ductulas.

**29. Hydrocephalus.** Cerebral hemispheres are represented, they are enlarged in size, the parenchyma of the cerebrum is sharply thinned and looks like the wall of capsule. This is an example of local atrophy from liquor pressure, which is accumulated in lateral ventricles under the disturbance of its drawing off.

**30. Hydronephrosis.** Kidney as a bladder with numerous cameras. Parenchyma is atrophied and is represented as a wall of the capsule.

**Causes:** disturbance of drawing of urine. Such alterations appear under urolithiasis. It's a local atrophy from pressure.

**Outcomes:** function is disturbed, isufficiency.

### **38, 7. Tonogenous hypertrophy (concentrated hypertrophy of the heart).**

**Causes:** hypertonic disease, aorta valve defects; develops as an example of compensatorious hypertrophy. Myocardium is hypertrophied at the expense of hyperplasia of intracellular organoids. Stromal component is hypertrophied.

**Outcomes:** transition to the eccentric hypertrophy and development of cardiac insufficiency.

**40. Necrotic nephrosis.** The pale cortical layer and plethoric medulary layer are seen.

**Causes:** under intoxication of the organism, traumatic shocks and shocks of other origin. There is an example of direct and indirect necrosis in origin. The direct one develops in the epithelium of small channels (excretion of toxin). Indirect - in the glomus in consequence of the ischemia of cortical substance - a pale cortical layer.

**Outcomes:** acute renal failure, death.

### **Case 3**

#### ***Disturbance of blood circulation***

- 1. Brown induration of the lung.**
- 2. Nutmeg liver. Primary stage**
- 3. Shock kidney.**
- 4. Hemopericardium.**
- 5. Hemorrhage into the brain stem.**
- 6. Hemorrhage into the area of IV ventricle of the cerebrum and subarachnoidal hemorrhages.**
- 7. Hemorrhagic pneumonia.**
- 9. Metastases of the cancer of the stomach into the liver.**

10. Apostematous pyelonephritis.
11. Thromboses of the aorta bifurcation with recanalization.
12. Thromboembolism of the pulmonary artery.
- 13, 40. Cyanotic induration of the kidney (venous plethora of the kidney).
- 14, 25. Thromboembolism of the pulmonary artery.
15. Hemorrhage into the lateral ventricles.
16. Hydronephrosis.
17. Aneurysm of the big popliteal vein with the following thrombosis.
18. White infarction of the kidney.
19. Hemorrhage into the cerebellum.
20. Chronic bronchitis with thromboembolism of the small branches of the pulmonary artery.
21. Hemorrhage into the thyroid gland tumor.
22. Red softening of the cerebral tissue.
23. Hematoma of the cerebrum.
24. Varicose enlargement of the veins of the mucous membrane of the stomach.
26. Parietal thromboses in the heart cavity.
- 27, 37. Hemorrhage towards the capsule of the kidney.
28. Hemorrhage into the suprarenal gland.
29. Parietal thrombus in aorta.
30. Nutmeg liver. Final stage
33. Thrombosis of the aorta.
34. Hemorrhage into the lung.
35. Subarachnoidal hemorrhage.
38. Thrombosis of the aorta with recanalization and rethrombosis.

**I. Brown induration of the lung.** The tissue is brown in the cut, the parenchyma is dense.

**Causes:** disturbance of blood outflow from lungs in pulmonary

veins. Such changes appear under: 1) the defects of heart, 2) myocarditises, 3) ischemic disease of the heart. Stagnation is observed in the lungs, imbibition of the parenchyma by hemosiderin and expansion of the connective tissue.  
**Outcomes:** the function is decreased, inflammation.

**2. Nutmeg liver. Primary stage** (hepar muscatum simplex and h.m. adiposum), the liver is enlarged, infirm, yellow-brown with numerous dark-red spots on the surface and in the cut - extended and overfilled central veins with diapedesis of blood off the vascular wall. Yellow colour and infirmity are explained by fatty dystrophy.  
**Causes:** hypoxia.

**3. Shock kidney.** The pale cortical layer and the dark- blue plethoric medullary one are seen. Such changes appear under shock conditions. Profound disturbances of blood circulation in internal organs. Morphological changes: there is ischemia in the cortical layer, spasms of arteries, plethora in the medullary layer.  
**Outcomes:** death from acute renal failure.

**4. Hemopericardium.** Accumulation of blood is seen that press the heart. Besides there is altered structure of cardiac muscle with its destruction.  
**Causes:** rupture of the heart wall or disturbance of cardiac muscle by knife.  
**Outcomes:** sudden death.

**5. Hemorrhage into the brain stem.** Hemorrhage into the brain stem with its destruction ( hematoma) is seen.  
**Causes:** (hemorrhage- per rhexin) rupture of the wall of artery is observed under atherosclerosis, hypertension (hemorrhage per diabrosin) arrosion of the vessel wall-under



tumorous processes. Outcomes: lethal.

**6. Hemorrhage into the area of IV ventricle of the cerebrum and subarachnoidal hemorrhages.**

Accumulation of blood in the area of IV ventricle and stroma of the cerebrum.

**Causes:** (hemorrhage per rhexin) rupture of the artery wall is observed under atherosclerosis, hypertension (hemorrhage per diabrosin) erosion of the wall of the vessel under the tumorous processes.

**Outcomes:** lethal, blood pressure on the vital important centres of the rhomboid foveola.

**7. Hemorrhagic pneumonia.** The lung is dark-red with numerous hemorrhages, dense. This is the example of inflammatory hyperemia, which often occurs under virus infections (influenza) morphologically: imbibition by erythrocytes in tissue. **Outcomes:** lethal with the development of pulmonary and cardiac insufficiency.

**9. Metastases of the cancer of the stomach into the liver.**

Numerous focals of grey colour and various diameter, which set out the surface of the liver. This is an example of the tissue embolism, the structures of stomach tumor get into the liver by the system of the portal vein.

**10. Apostematous pyelonephritis.**

The lung is enlarged, infirm, grey and motley. The focals of pale-grey colour ( $d=0,2 - 0,8$  cm) are seen. These are abscesses under the capsule. Embolism of microorganisms takes place, when microorganisms spread in the organism hematogenic (kidney) under sepsis.

**11. Thromboses of the aorta bifurcation with recanalization.** It is seen the extended lumen of the aorta in the place of bifurcation, which is filled with mixed thrombus. In the middle of the thrombus one can see the canal. This is an example of favourable outcome of thrombus.

**12. Thromboembolism of the pulmonary artery.** It is seen the thrombus of red colour which is unrestrictedly situated in the place of bifurcation of the pulmonary artery and fills in the lumen completely.

**Causes:** 1) avulsion of the thrombus from the veins of the inferior extremities under their varicosis. 2) thrombus from the vessels of the small pelvis organs after operations. 3) stagnated thrombuses under chronic cardiac insufficiency. Thromboembolism of the pulmonary artery often appears after operations.

**Outcomes:** 1) pulmonary infarction. 2) death from pulmo-coronar shock. The mechanism of death: in the result of the irritation of baroreceptors in the area of pulmonary artery the reflex spasm of small branches of the pulmonary artery, coronary artery and small bronchuses appears.

**13, 40. Cyanotic induration of the kidney (venous plethora of the kidney).**

The kidney is enlarged and dark-blue as a result of the stagnation of venous blood in the kidney.

**Causes:** 1) thrombosis of kidney veins. 2) general venous plethora, occurred under: chronic myocarditis, endocarditis, ischemia, diseases of the organs of respiration. Under cyanotic induration the expansion of the connective tissue and the induration of the organ is observed.

**14, 25. Thromboembolism of the pulmonary artery.** The lung tissue is dark-red and dense. The colouring is explained

by the development of the red pulmonary infarction. An example of vascular necrosis - red colouring appears in the result of hemorrhage into the area of necrosis under small damages, development of pneumonia before infarction, death.

**15. Hemorrhage into the lateral ventricles.** In the lateral ventricle of the cerebrum the accumulation of blood is seen. Such hemorrhages happen under the rupture of the cerebral artery during the hypertensive attack. **Outcomes:** death.

**16. Hydronephrosis.** An example of the disturbance of the fluid contents in tissues. The enlargement of pelvises is seen, it appeared in the result of the accumulation of urine under the obstructing of the ureter by a stone. **Outcome:** renal insufficiency,

**17. Aneurysm of the big popliteal vein with the following thrombosis.** It is seen: the sack looking formation  $d=10\text{cm}$ . Thrombus-dilators are often formed in such aneurysms, they may be the source of thromboembolism of the renal artery.

**18. White infarction of the kidney.** The area of triangular form of grey colour is seen in the cut, it's  $1 \times 1,5\text{cm}$  in size - this is the white infarction. It takes place under the making of thrombus by the atherosclerotic patch in the small branch of renal artery. **Outcomes:** the area of necrosis is replaced by the connective tissue and a cicatrix appears in this place with a hollow.

**19. Hemorrhage into the cerebellum.** It is seen: the subarachnoid accumulation of blood in the hemispheres of the cerebellum.

**Causes:** (hemorrhage per rhexin) under the rupture of the cerebellum artery, under the hypertensive attack.

**20. Chronic bronchitis with thromboembolism of the small branches of the pulmonary artery.** It is seen: the cut of the pulmonary tissue, the extended walls of bronchuses, sclerotic changes of the pulmonary tissue and thrombuses in the lumen of the small branches of pulmonary tissue and thrombuses in the lumen of the small branches of pulmonary artery. The origin of thromboembolism is explained by the lungs and heart pathology with the formation of stagnated thrombuses. They are the source of thromboembolism of pulmonary artery.

**21. Hemorrhage into the thyroid gland tumor.** The hypertrophic gland to 8cm is seen. The areas of dark-red colour are seen in the cut.

**Causes:** taking into consideration tumorous process-hemorrhage per diabrosin (arrosion of the artery wall).

**Outcomes:** organization or lysis with the formation of cyst.

**22. Red softening of the cerebral tissue.** Within the cerebrum it is seen the considerable hemorrhage with the destruction of the parenchyma - hemorrhage insultus, which occurs in the result of the rupture of the vessel wall under the hypertension.

**Outcomes:** death.

**23. Hematoma of the cerebrum.** It is seen in the cut the dark-red area to 2cm in size with the destruction of the cerebral substance - hematoma.

**Causes:** hemorrhage per rhexin, per diabrosin.

**Outcomes:** hemorrhage with necrosis (colliquational) that's why lysis of the tissue and formation of capsule with hemosiderin develops.

**24. Varicose enlargement of the veins of the mucous membrane of the stomach.** It is seen: the enlarged veins in submucous layer and the atrophied mucous

membrane.

**Causes:** disturbance of blood circulation in the liver under portal cirrhotic changes. Consequently porto-caval anastomoses are opened. Hemorrhages often occur from such veins.

**26. Parietal thromboses in the heart cavity.** It is seen: the parietal thromboses in the heart cavity of the left ventricle, in the cut of its wall dark-red areas - foci of infarction are seen. Parietal thromboses in the left ventricle often occur after the myocardial infarction and after endocarditis.

**Outcomes:** thromboembolisms in the systemic circulation with the development of infarctions in different organs.

**27, 37. Hemorrhage towards the capsule of the kidney.** The limited accumulation of blood under the capsule is seen.

**Causes:** mechanic obtuse trauma with the rupture of the vessel and accumulation of blood.

**Outcomes:** organization, lysis with secondary hemorrhage into the extraperitoneal area.

**28. Hemorrhage into the suprarenal gland.** Infant kidney and suprarenal gland is dark-red in the result of imbibition of the tissue by erythrocytes.

**Causes:** hemorrhage per diaphragm under the meningococcus infection.

**Outcomes:** acute suprarenal failure.

**29. Parietal thrombus in aorta.** The intima of the aorta damaged by atherosclerosis process is seen, the parietal thrombus lies on the surface.

**Causes:** activation of the tissue thrombolytic, which sets going the mechanism of the formation of thromboses.

**Outcomes:** the avulsion of the thrombus, thromboembolism.

**30. Nutmeg liver. Final stage** (hepar muscatum ciroticans), the liver is decreased, dense on the surface and in the cut it has granularity. The areas of yellow colour and numerous dark red spots are seen. Granularity, tuberosity and density are explained by expansion of connective tissue, which appears as a result of hypoxia and desructive changes in hepatocytes.

**Causes:** 1) chronic cardiac pathology: ischemia, myocarditis, endocarditis. 2) chronic pulmonary pathology with the development of pulmonary heart. 3) thromboses, thrombophlebitises of liver veins.

**33. Thrombosis of the aorta.** It is seen: deep damage of the wall with atheromatosis and formation of the thrombus, which screens the lumen of the aorta and disturbs the circulation.

**Causes:** activation of the tissue thrombokinasa, which sets going the mechanism of the formation of thrombuses.

**34. Hemorrhage into the lung.** It is seen: under the visceral pleura there is an accumulation of blood without distinctive borders.

**Causes:** arrosion of the wall vessel which is seen as grey spots  $d=0,3 - 0,4$  cm under the pleura.

**35. Subarachnoidal hemorrhage.** One can see the accumulation of blood in the soft membranes of the brain in the vascular plexus without distinctive borders.

**Causes:** hemorrhage per rhexin under the hypertensive attack.

**38. Thrombosis of the aorta with recanalization and rethrombosis.** It is seen the extended lumen of the aorta, which is filled with mixed thrombus. In the middle of the thrombus one can see the canal. The canal is closed by new red thrombus.

## Case 4

### *Inflammation*

1. Purulent salpingitis.
2. Productive esophagitis.
3. Abscess of the kidney.
4. Polyposis of the stomach.
5. Antenatal peritonitis.
6. Purulent meningitis.
7. Fibrinous inflammation of the upper respiratory tract.
8. Fibrinous-hemorrhagic inflammation of the larynx, the trachea and bronchuses.
9. Fibrinous-purulent pleurisy.
10. Fibrinous pleurisy.
11. Hemorrhagic tracheobronchitis.
12. Abscess of the cerebellum.
- 13, 14. Pleural empyema.
15. Fibrinous pericarditis.
16. Chronic gastritis.
- 17, 18. Fibrinous adhesive pleurisy.
19. Echinococcus cyst in the liver.
20. Fibrinous esophagitis.
21. Purulent fibrinous endometritis.
- 22, 23. Phlegmonous appendicitis.
24. Purulent meningitis with the abscessing.
25. Fibrous cavernous tuberculosis.
26. Chronic abscess of the lung.
27. Fibrinous hemorrhagic cystitis.
28. Basal meningitis.
29. Tuberculoma.
30. Fibrinous necrotic colitis.
31. Meningococcus meningitis.
32. Gon's focus.

#### 40. Big particoloured kidney.

**1. Purulent salpingitis.** The enlarged uterine tube with the thickening to 1,5cm on the preparation. The wall of Fallopean tube is edematous enlarged with dilated vessels. Purulent exudate appears diffusely through all layers of tube. In the lumen there are erythrocytes. The destructive changes, hemorrhages and depositions of purulent masses of diffuse character are seen within the wall. This is an example of exudative purulent inflammation.

**Outcomes:** purulent process expands to the surrounding tissues with the development of peritonitis, organization and formation of commissures, secondary sterility .

**2. Productive esophagitis.** The wall of the esophagus is seen on the preparation, the deposit of grey colour polypus with proliferation of epithelium is observed on its mucouse membrane.

**Causes:** infections.

**Outcomes:** organization, malignisation.

**3. Abscess of the kidney.** The cut of the kidney is seen on the preparation, in the upper of which there is a cavity. It is filled with grey cream-looking masses. The walls of the cavity are rough. This is a kind of exudative inflammation (purulent).

**Outcomes:** expansion of purulent process to the neighbouring tissues of the kidney with the development of paranephritis, pyonephrosis, sepsis.

**4. Polyposis of the stomach.** Two regenerations of the mucous membrane (1,5 cm in size) are seen on the preparation. Polypus is an example of productive inflammation, which is characterised by the inflammatory cellular infiltration in the mucous membrane with the following proliferation of



the epithelium of the membrane.

**Outcomes:** polypus is considered as a precancerous obligatory process, which has high probability of the degeneration to cancer. After operative removal it often recurrences.

**5. Antenatal peritonitis.** The organocomplex of a new-born (infant) is seen on the preparation, deposition of threads on fibrin - on the peritoneum. This is an example of the exudative fibrinous inflammation which occurs under the prenatal infection of the fetus.

**Outcomes:** lethal.

**6. Purulent meningitis.** On the preparation there is a cerebrum, in which the deposits on the surface of the meninges are seen - purulent masses of grey colour. This is an example of exudative inflammation.

**Outcomes:** purulent meningitis often has a lethal ending, or it may cause the organization with fibrosis of meninges and disturbance of the circulation of liquor.

**7. Fibrinous inflammation of the upper respiratory tract.** On the preparation there is an organocomplex, which includes larynx, trachea and other organs of mouth cavity and neck. On the mucous membrane of the larynx and the trachea there are grey membranes with loose consistency. They are not closely fixed to the mucosa and are easily separated. This is an example of the exudative inflammation (fibrinous, croupous).

**Outcomes:** the membranes may be torn off and cause the aspiration of the lower respiratory tract with the development of pneumonia, asphyxia.

**8. Fibrinous-hemorrhagic inflammation of the larynx, the trachea and bronchuses.** The organocomplex of the organs of the neck and of the mouth cavity is presented on the

preparation. On the mucosa of the respiratory tract one can see the deposition of fibrinous masses, which are not closely fixed to the mucous membrane, and also the areas of dark-red colour – focuses of hemorrhages in the mucosa. In this case the exudative inflammation of mixed character takes place: fibrinous-hemorrhagic.

**Causes:** microorganisms, toxins.

**Outcomes:** resorption, organization, asphyxia, aspiration.

**9. Fibrinous-purulent pleurisy.** The lung with the inflammation of pleura is presented on the preparation. The visceral pleura is thickened at the expense of the deposition of fibrin and purulent masses. In this case exudative inflammation of mixed character takes place.

**Outcomes:** organization with formation of commissures between the visceral and parietal leaves of pleura with the following development of adhesive pleurisy; the development of the pleural empyema.

**10. Fibrinous pleurisy.** A part of the lung with fibrinous membranes on the visceral pleura is presented on the preparation. This is an example of exudative inflammation.

**Causes:** pneumonias (especially croupous), endogenous intoxication (uremia), tuberculosis, rheumatism.

**Outcomes:** resorption of fibrinous membranes; organization and formation of commissures.

**11. Hemorrhagic tracheobronchitis.** On the preparation the cut of the trachea and big bronchus is presented. The punctate hemorrhages of dark-red colour in the mucous are noted. This is an example of exudative inflammation (hemorrhagic).

**Causes:** virus infections, especially dangerous ones.

**Outcomes:** resorption, organization.

**12. Abscess of the cerebellum.** The cut of cerebellum tissue is seen on the preparation, in the centre of which there is a cavity formed without definite borders. It is filled with grey cream-looking masses. The example of exudative (purulent) inflammation.

**Outcomes:** the purulent process may undergo a resorption; organization; generalization processes with the development of the purulent encephalitis, meningitis.

**13, 14. Pleural empyema.** The cut of the parietal leaf of pleura is presented on the preparation. The cavity is bordered by the fibrous tissue. In the cavity an accumulation of grey cream-looking purulent masses is noted. Empyema is the example of the limited purulent inflammation in the cavities of the body.

**Outcomes:** organization; expansion to the surrounding tissues with the development of sepsis.

**15. Fibrinous pericarditis.** The heart with the deposition of fibrinous masses on the epicardium and pericardium is seen on the preparation. This is an example of exudative (fibrinous) inflammation.

**Causes:** endogenous intoxications.

**Outcomes:** resorption; organization with the formation of adhesions with the following cardiac insufficiency.

**16. Chronic gastritis.** The wall of the stomach is seen on the preparation, in the mucous membrane of the stomach the areas of atrophy, hypertrophy and the deposition of mucus and the areas of hemorrhages are noted. This is an example of exudative (catarrhal) inflammation of mixed variant (catarrhal-hemorrhagic). The chronic course led to the atrophic changes in the mucous membrane.

**Outcomes:** chronic atrophic gastritis regarded as precancerous

processes.

**17, 18. Fibrinous adhesive pleurisy.** A part of the lung covered with visceral and parietal leaves of pleura is presented on the preparation. Between the leaves the deposition of fibrinous membranes of grey color and the formation of the commissures between the leaves are seen.

**Outcomes:** complete adhesion of visceral and parietal leaves of the pleura with the disturbance of respiration function.

**19. Echinococcus cyst in the liver.** The cut of the liver is presented on the preparation, one can see a cavity, which is filled with the loose brown mass – the animal parasites with the products of vital activity. There is a capsule around the mass, it restricts the pathologic process to spread to tissue. This is an example of the productive inflammation with the formation of capsule around the animal parasite.

**20. Fibrinous esophagitis.** The wall of the esophagus is seen on the preparation, the deposits of fibrinous membranes of grey colour is observed on its mucouse membrane.

**Causes:** infections; endogenous and exogenous intoxications.

**Outcomes:** resorption; organization.

**21. Purulent fibrinous endometritis.** The enlarged in size uterine is presented on the preparation. It has a thickened wall that testifies to the pregnancy. The deposition of fibrinous and purulent masses of dark- grey colour with the focuses of hemorrhages on the mucous membrane is noted. This is an example of the exudative inflammation (mixed variant).

**Outcomes:** organization; expansion of the inflammation to the surrounding tissues with the development of parametritis, and sometimes sepsis.

**22, 23. Phlegmonous appendicitis.** The enlarged appendix with the wall thickening to 0,8 cm is seen on the preparation. The destructive changes, hemorrhages and depositions of purulent masses of diffuse character are seen within the wall. This is an example of exudative purulent inflammation.  
**Outcomes:** purulent process expands to the surrounding tissues with the development of peritonitis.

**24. Purulent meningitis with the abscessing.** The hemisphere of the cerebrum is presented on the preparation. Muddiness, diffuse deposition of grey cream-looking masses and focal destructive changes in the meninges and in the tissue of the cerebrum with the diameter to 2 cm are noted in the meninges. This is an example of exudative purulent inflammation.

**Causes:** microorganisms, especially meningococci.  
**Outcomes:** organization; formation of commissures, disturbance of liquor circulation.

**25. Fibrous cavernous tuberculosis.** The cut of the lung is presented on the preparation in which the formation of the cavity takes place. The wall of the cavity is a dense fibrous with the features of the productive granulomatous inflammation which is characteristic of tuberculosis (caseous necrosis, lymphocytes infiltration, epithelioid cells, gigantic Pirogov-Langhans cells). The caseous (cheese) necrotic masses are seen in the centre of the cavity (cavern).

**Outcomes:** the development of chronic pulmonary insufficiency in the connection with pneumosclerosis and cardiac insufficiency; the development of amyloidosis.

**26. Chronic abscess of the lung.** The cut of the lung is presented on the preparation, it has a cavity formation filled with grey cream-looking masses. The walls of the cavity are

rough, uneven, presented by fibrous tissue. This is an example of exudative (purulent) inflammation with chronic course.  
**Outcomes:** chronic abscess may be the source of expansion of purulent inflammations in organs – sepsis.

**27. Fibrinous hemorrhagic cystitis.** The wall of the urinary bladder is presented on the preparation. Hypertrophy, depositions of fibrin and dark-brown hemorrhages take place in the mucous membrane of the bladder. This is an example of exudative inflammation of mixed character.

**Causes:** infections, stagnation of urine.

**Outcomes:** sclerotic changes.

**28. Basal meningitis.** The stroma of the cerebrum with the deposition of fibrinous membranes and purulent masses of cream-looking character in the meninges is presented on the preparation. This is an example of exudative inflammation of mixed type (purulent fibrinous).

**Causes:** microorganisms (more often meningococcus infection).

**Outcomes:** organization with the disturbance of liquor circulation.

**29. Tuberculoma.** The cut of the lung is seen on the preparation, the grey area with distinctive borders with the diameter 3cm is noted. The area of damage is a focus of destructive necrotic changes of caseous character, which occur under tuberculosis. A thin capsule with the features of productive granulomatous inflammation of specific character are formed around the focus of damage. This is an example of alterative inflammation.

**Outcomes:** expansion to the surrounding tissues (expansion of the tuberculosis inflammation).

**30. Fibrinous necrotic colitis.** A part of the bowel is presented on the preparation. There are depositions of fibrinous masses, destructive changes (erosions) and hemorrhages of dark- red colour. This is an example of exudative inflammation of mixed character.

**Outcomes:** organization and formation of adhesions; in the case of progressing of the destructive changes perforation with the development of peritonitis occurs.

**31. Meningococcus meningitis.** The hemisphere of the cerebrum is seen on the preparation, the deposition of fibrin in the meninges is noted, the soft membrane is muddy and opaque. This is an example of exudative inflammation.

**Outcomes:** organization of fibrin with the disturbance of liquor circulation.

**32. Gon's focus.** The cut of the lung is presented on the preparation. A grey spot with distinctive borders and the diametre 3mm is seen under the pleura. This is an example of the productive granulomatous inflammation of the specific character, that occurs under the tuberculosis infection and has the features described in the preparation №25.

**Outcomes:** sclerosis and petrification, in the case of progressing the generalization of the tuberculosis process is possible.

**40. Big particoloured kidney.** The enlarged in size kidney is seen on the preparation. It has grey-yellow colouring with the focuses of hemorrhages of dark-red colour . This is an example of the immunocomplex inflammation, which occurs in the result of the deposition of the immune complexes in basal membranes of the glomerules, that is observed under the glomerulonephritis.

**Outcomes:** in consequence of hard destructive changes renal

insufficiency often develops.

## Case № 5

### *Tumors (1)*

1. Hematogenic metastases of cancer in the lung.
2. Fibrosarcoma.
3. Glioblastoma with a hemorrhage.
4. Metastasis of stomach cancer into pancreas.
6. Adenocarcinoma of the rectum.
7. Metastases of stomach cancer in a liver with the secondary changes.
8. Fibromyoma of uterus with the secondary changes.
9. Adenoma of the kidney.
10. Plural cysts of ovaries.
11. Cancer of the kidney.
12. Cancer of adrenals.
13. Metastases of cancer to inguinal lymphatic nodules.
15. Papillar cystadenocarcynoma of ovary.
17. Papillar cyst of ovary with malignization.
18. Mucous covering of tumour.
19. Lipoma.
20. The Wilms' tumour.
22. Stenosing cancer of colon.
24. Astrocytoma.
25. Fibromyoma submucosis.
26. Fibrosarcoma.
28. Metastases in lungs.
29. Lymphatic nodules at limfogradulematosis.
31. Plural adenomas of thyroid gland.
32. Lympholeucosis.
33. Metastases of the stomach cancer in a omentum.



- 38. Polypous cancer of the stomach.
- 40. Sarcoma.
- 43. Fibroma.
- 44. Fibromatous nodule with the secondary changes.
- 45. Adenoma of thyroid gland with malignization and the secondary changes.
- 46. Adenocarcynoma mucinosa of the ovary.
- 47. Cavernous hemangioma of liver.
- 48. Cancer of ovary with carcinomatosis of peritoneum.
- 49. Adenomatous polypus of intestine with malignization.
- 50. Metastasis of adenocarcinoma in the liver.
- 51. Metastasis of melanoma in a liver.

1. **Hematogenic metastases of cancer in the lung.** On preparation lung with the area of metastatic nodule in the diameter of 1cm of grey color. A nodule is situated under pleura, that testifies hematogenic spreading of malignant tumours in a lung is represented.

2. **Fibrosarcoma.** Tumour is made of fibrous tissue without clear border, a tumour has dense consistency, that testifies of its mesenchymal origin (from connecting tissue). Absence of clear border testifies about infiltrating growth, that confirms about its malignant origin. On the cut of tumour the areas of destruction of tumours tissue are visible that are its necrosis changes. It is the secondary changes in a tumour, which are often observed in malignant tumours. At histological research we find the signs of cellular atypism in the tumour of connective tissue.

3. **Glioblastoma with a hemorrhage.** The cut of the cerebrum tissue, in which excrescence of tumour without clear border with fascination of grey and white substance of hemispheres are seen. The areas of necrosis and hemorrhage take place in a

tumour. At histological research there is excrescence of atypical glial cells in tumour tissue – glioblasts with pathological mitosis, hyperchromatosis of nuclei, and infiltrative growth of cells.

**4. Metastasis of stomach cancer into pancreas.** On the cut of pancreas tissue numerous nodular formations in diameter of a 1-2 cm of grey color which are separated from parenchyma by capsule are seen. Histologically – in nodular formations the presence of mucous structures is found what characteristic for a stomach (mucous membrane). In addition in the glands tumourous nodules with signs of cellular atypism with numerous pathological mitosis are revealed. The described data testify about the metastasis of adenocarcinoma from the stomach into the pancreas.

**6. Adenocarcinoma of the rectum.** Represented distal part of rectum, in formation of which there are polypous excrescences of mucous membrane with its ulceration, which narrows its lumen and can cause intestinal impassability. Histologically – in these formations the presence of excrescence of mucous epithelium with the signs of cellular and tissue atypism are found. Thus in this case exophitic growth of malignant tumour takes place.

**7. Metastases of stomach cancer in a liver with the secondary changes.** The cut of liver has numerous nodular formations in parenchyma in diameter of 1cm. In some of them there are hemorrhagic and necrotic changes. Histologically – the presence of atypical mucous structures those correspond the mucous membrane of stomach are found in nodular formations. In this case hematogenic (by the system of portal vein) metastasis of adenocarcinoma of stomach in a liver takes place.

**8. Fibromyoma of uterus with the secondary changes.** Uterus, in the wall of which nodule-like excrescences take place, in a diameter of 15cm. On a cut nodule has a fibrous structure, dense consistency. There is the hemorrhage of dark color in certain areas of nodule. At histological research of nodule the signs of tissue atypism among smooth myocytes and connective tissue structures are found.

**9. Adenoma of the kidney.** On the cut of the kidney in upper pole excrescence of tumorous nodule of yellow-greyish color in a diameter of 4cm takes place, which on a cut it has the microlobular and middlelobular structure. Histology of tumour shows the presence of excrescences of renal tubular epithelium with the signs of tissue atypism and expansive growth, that is characteristic of benign tumour – light-cellular adenoma, because the cytoplasm of epithelial tissue had the light structure.

**10. Plural cysts of ovaries.** An enlarged ovary, in a diameter of 6-7 cm with an even surface due to numerous cystic formations is presented. Cysts on a cut contain a transparent liquid and have a smooth and shiny surface. This is so called serous or cillioepithelial cyst. At histological research – in cysts an atrophied epithelium with the signs of tissue atypism are detected.

**11. Cancer of the kidney.** The kidney, enlarged due to excrescence of numerous nodules of yellow-greyish color, in which plural hemorrhages is represented. A tumour does not have clear borders, that displays its infiltrative growth. Histologically – in the tumour signs of excrescence of atypical epithelial cells with numerous pathological mitosis. Tumorous structures remind the parenchymatous structures of kidney, in this case it is possible to speak about a kidney-cellular cancer.

**12. Cancer of adrenals.** On the cut of adrenal, which is considerably enlarged due to excrescence of tumorous structures of yellow-greyish color with mucous covering and destructive changes. Histologically is a presence of atypical cells from a medullar layer, that characteristic for malignant pheochromocytoma.

**13. Metastases of cancer to inguinal lymphatic nodules.** On preparation there are the enlarged lymphatic nodules in a diameter of 3cm , which are situated in a hypodermic-fatty cellulose. On a cut a tumour nodule has cystical formations. Histologically – in tissues of lymphatic nodules the atypical mucous structures, that attest about presence of lymphogenous metastases of cancer.

**15. Papillar cystadenocarcynoma of ovary.** Ovary is enlarged up to 20cm due to formation of large cyst. On the internal surface of cyst wall there are numerous papillomatous excrescences with ulceration and germination in the layer of wall. At histological research excrescences of atypical epithelial structures with numerous pathological mitosis and cellular atypism of ovary are found. Presence of described macro- and microscopic its displays characteristically for a papillar cystadenocarcynoma of ovary.

**17. Papillar cyst of ovary with malignization.** An ovary is enlarged in sizes up to 10cm due to formation of the proper cyst, which has the thin-walled structure with presence of focuses of papillar excrescences in cyst's lumen. At histological research in this excrescences signs of adenomatosis structures, in which meet single pathological mitosis and celullar atypism are found .

**18. Mucous covering of tumour.** Represented cut of tumour formation without clear border, dense consistency. There is in wall the presence of mucous in more thick tumours, that certifies secondary its changes, such phenomena are observed in malignant tumours.

**19. Lipoma.** Tumour consists from fatty tissue, as separate nodules which meet in one conglomerate in a diameter of 10cm. On the surface of one of nodules we can see the areas of hemorrhage, that are evident of the secondary changes in a tumour.

**20. The Wilms' tumour.** On the preparation a child's kidney of 6x3 cm is presented in the superior pole of which there is formation of tumour in a diameter of 10 cm with the areas of hemorrhage, necrosis, mucous degeneration. Tissue of tumour has a pied kind. Histologically structure of kidney is with the signs of cellular and tissue atypism, numerous mitosis, infiltrational growth. The Wilms' tumour is a tumour which has the embryonic and is observed in child's age.

**22. Stenosing cancer of colon.** On preparation there is represented a part of colon. Its lumen is narrowed because of excrescence of malignant tumour. On a cut a tumour has a numerous hemorrhage, areas of necroses, absence of clear borders of its growth. At histological research the found signs of atypical mucous structures with numerous pathological mitosis and atypism.

**24. Astrocytoma.** There is the represented hemisphere of cerebrum on preparation, in the temporal area in which there is tumours formation in a diameter of 2cm with clear scopes. Tumour of grey color with the areas of hemorrhage. At histological research in tissue of tumour excrescence of astrocytes with numerous fibrillar and protoplasmatic

structures and signs of expansive growth are found.

**25. Fibromyoma submucosis.** There is a cut of uterus on preparation with tumular formation in a diameter of 1,5cm of dense consistency and grey color takes place in the submucosis layer of it. Histologically signs of tissue atypism of connective tissue and muscular structures are found.

**26. Fibrosarcoma.** Tumour in a diameter of 15cm of grey color, which consists of the fibrillar structures of the different character without clear border of growth. The areas of necrosis and destruction of tissue are visible in more thick tumours. Histologically – atypical connective tissue structures which are represented by fibroblastes, by fibres with numerous pathological mitosis, by cellular atypism, infiltrating growth are detected.

**28. Metastases in lungs.** On the preparation there is a cut of lung, which filled by the grey nodules of different diameters from 1-2cm. In some areas lungs take place hemorrhage. Histologically there are the signs of structure of gaster adenocarcynoma. Consequently, it is the hematogenesis metastases of stomach cancer.

**29. Lymphatic nodules at limfogradulematosis.** Represented lymphatic nodule of grey color, in the diameter of 5cm of dense consistency. Histologically the picture of lymphatic nodule is effaced due to excrescence of connective tissue, hyalinosis, proliferation of lymphocyte, plasmocytes, epithelioid cells, histocytes and multynuclear cells Beresovskiy-Shtemberg, small and large cells Hodgkin.

**31. Plural adenomas of thyroid gland.** A thyroid gland is enlarged to 15cm. In parenchyma of gland plural tumoral

formations of pink color, of 1-2cm in diameter, which have clear border and capsule are found. Histologically there is in tumour nodules excrescence of follicular epithelium, which forms adenomatous structures, with the signs of tissue atypism.

**32. Lympholeucosis.** Represented a part of aorta, which excrescence of enlarged paraaortic lymphatic nodules which have sizes of 1-3cm, with dense consistency, is round. Microscopically in tissue of lymphatic nodules proliferation of leucosis cells, which totally substitute parenchyma of lymphatic nodules is found.

**33. Metastases of the stomach cancer in a omentum.** There is a thin bowel on preparation, in mesenterium of which takes place proliferation of tumour structures of small and large lobular character, with the presence of hemorrhage on a cut. Histologically – in tumour formations of omentum excrescence of atypical structures is found with numerous pathological mitosis. Glandular structures are similar to the structure of stomach mucous, that testifies about metastasis of malignant tumour of stomach in a omentum.

**38. Polypous cancer of the stomach.** The wall of the stomach with the signs of hypertrophy of mucous membrane. Crateriform formation takes place in the center of preparation, at the back of it is polypoid excrescence with the diameter of 2cm. At histological research of the affected area of damage of stomach wall excrescence of atypical glandular structures with numerous pathological mitosis and cellular atypism is exposed.

**40. Sarcoma.** There is a tumour of grey color with the diameter of 15cm, which is formed with the fibre structures of differently directed character without clear border of growth. The areas of necrosis and destruction of tissue are visible in

more thick tumours. Histologically: atypical connective tissue structures which are formed with fibroblasts, fibres with numerous pathological mitosis, cellular atypism, infiltration growth.

**43. Fibroma.** On preparation a nodule with clear border and diameter of 15cm is represented. On a cut a nodule has the fibre structure with connective tissue character of growth. A tumour has dense consistency, pink-grey color. Histologically there are the signs of tissue atypism and a tumour with a connective tissue structure.

**44. Fibromatous nodule with the secondary changes.** In the wall of uterus there is an excrescence as a nodule with a diameter of 15cm. On the cut the nodule has a fibre structure, dense consistency. There is the hemorrhage of dark color in the separate areas of nodule. At histological research of nodule there are signs of tissue atypism among smooth muscle and connective tissue structures.

**45. Adenoma of thyroid gland with malignization and the secondary changes.** Represented different variants of tumour formations of thyroid gland. Tumour formations have a pink-grey color, in the second is grey, in the third – there are cystic formations, in the fourth are areas of petrification of hemorrhage, mucous covering. Histologically: in nodular formations excrescence of follicle epithelium is found with the signs of tissue atypism. In separate glands in an epithelium is observed hyperchromatosis of nuclei, pathological mitosis with displasia of cells, that testifies to the malignant regeneration of adenomas.

**46. Adenocarcynoma mucinosa of the ovary.** On preparation there is enlarged ovary of 20cm due to excrescence of tumour



structures of glandular character with formation of cysts which contain mucin. Histologically: in tissue of tumours signs of cellular polymorphism of atypical mitosis in glandular structures are found.

**47. Cavernous hemangioma of liver.** There is a cut of liver on preparation, the numerous bloody lakes of different sizes from 1cm to 8cm are located in the layer, which almost fully substituted parenchyma of organs. Histologically: structure of vascular tumour with the cavernous regeneration.

**48. Cancer of ovary with carcinomatosis of peritoneum.** On preparation there is an enlarged ovary of 10cm due to excrescence of tumour which at histological research has the structure of adenocarcinoma. Next to it the area of peritoneum, which is damaged by numerous tumour formations of different diameters, is visible. Histologically: formations have the structure of tumour, which is found in an ovary.

**49. Adenomatous polypus of intestine with malignization.** There are different areas of bowel on preparation, on its mucous surface is observed polypoid with the diameter of 1-10cm. Histologically: polypoid condylar has the structure of adenoma with exophytic growth. In separate glands in an epithelium is observed hyperchromatosis of nuclei, pathological mitosis with displasia of cells, that testifies to the malignant regeneration of adenomas.

**50. Metastasis of adenocarcinoma in the liver.** On preparation represented the cut of liver with numerous nodular formations in parenchyma with the diameter of 1cm, which a hemorrhage and necrosis changes are in. Histologically: nodular formations contain numerous atypical glandular structures which correspond the mucous membrane of

stomach. In this case hematogenic (on the system of portal vein) metastasis of adenocarcinoma of stomach in a liver take place.

**51. Metastasis of melanoma in a liver.** On preparation represented the cut of liver, on its back tumours' formation black colour is visible. At histological research excrescence of atypical melanocytes with numerous pathological mitosis and cellular atypism, which hematogenic metastasis in a liver is found.

### Case 6

#### *Tumors (2)*

1. Papillary adenocarcinoma of ovary.
3. Lymphogranulomatosis.
5. Papilloma of the skin.
6. Congenital cancer of lungs.
7. Fibromyoma of the uterus with hemorrhages.
10. Fibroma of the uterus.
12. Carcinomatosis of the peritoneum.
13. Cancer of the urinary bladder.
14. Metastases of seminoma into the inguinal lymphatic nodes.
16. Central cancer of the lung.
17. Adenoma of the thyroid gland.
18. Cancer of the mammary gland.
19. Metastases of cancer into the lung.
20. Submucous fibromyoma of the uterus.
21. Plane cellular carcinoma of the skin.
22. Metastases of cancer of the mammary gland into the skin.

- 23. Papillary cancer of the ovary.
- + 24. Melanoma of the skin with ulceration.
- 25. Adenoma of the adrenal gland with secondary changes.
- 26. Splenomegaly during leucosis.
- 28. Cancer of the skin.
- 29. Diffuse leucosis infiltration of the horseshoe kidney.
- 30. Fibroma with necrosis of the knot.
- 31. Lympholeucosis.
- 32. Myeloid retracted kidney.
- 33. The porphyrinous spleen.
- 34. The nephroblastoma.
- 35. Peget's disease.
- 37. Spleen duringt myeloleucosis.
- 42. Carcinomatous omentitis.
- 43. Cancer of the kidney.
- 44. Lipoma.
- + 46. Melanoma of the eye.
- 47. Adenoma of the adrenal gland.
- + 48. Melanoma of the skin.
- 49. Metastases into the omentum.
- 50. Cancer of the larynx.
- + 51. Nevus of the skin with malignization.
- 52. Tecoma.
- 53. Granulous cellular tumor of the ovary.
- 54. Atheroma.
- 55. Metastases of lymphosarcoma into the kidney and the liver.

**1. Papillary adenocarcinoma of the ovary.** The ovary is enlarged; the expansion of the tissue of tumor origin is seen on the surface. The picture of the tumor looks like a cauliflower. During histological research the features of the atypical cellular and tissue structures have been found.

**3. Hodgkin's disease (lymphogranulomatosis).** Enlarged to 5-10 cm lymph nodes are represented on the preparation. Enlarged lymph nodes press the windpipe that causes asphyxia, the tissue of lymph nodes is of grey color, somewhere with hemorrhages and necrotic changes. During histological research the features of the lymphoid, plasma cell and histiocytes infiltration have been found in the lymph node, there are also large and small cells of Hodgkin and polynuclear cells of Berezovsky – Sternberg, Reed, the areas of hyalinosi and sclerosis.

**5. Papilloma of the skin.** The tumor of the skin with exophytic germination of 7 cm is represented on the preparation. During histological research the features of the atypical multilamellar epithelial tissue with keratosis have been found.

**6. Congenital cancer of the lungs.** The lung of a newborn is represented on the preparation. The expansions of numerous tumor formations of grey colour are seen on the surface and in the profound of the lung. During histological research the features of the cellular and tissue atypism of the alveolar structures of the lung have been found.

**7. Fibromyoma of the uterus with hemorrhages.** The cut of the uterus wall is represented on the preparation. The expansion of tumor tissue with the areas of hemorrhages and necrosis are seen. The features of the tissue atypism in muscular and connective tissue structures have been found during histological research.

**10. Fibroma of the uterus.** The cut of uterus wall with the expansion of tumor tissue with the areas of hemorrhages and necroses is represented on the preparation. The features of

tissue atypism in the connective tissue have been found in the tumor during histological research.

**12. Carcinomatose of the peritoneum.** The peritoneum wall is represented on the preparation. The tumor formations with the diameter of 1 cm with the exophytic growth are seen on the surface. The features of cellular and tissue atypism of glandular structures have been found in the tumors during histological research.

**13. Cancer of the urinary bladder.** The wall of the urinary bladder is represented on the preparation. Tumor formations with exophytic growth are seen. The tumor looks like a cauliflower. During histological research of cellular and tissue atypism in the intermediary epithelium have been found.

**14. Metastases of the seminoma into inguinal lymphatic nodes.** The lymph node taken from the inguinal region is represented on the preparation. Its size reaches 10 cm. One can see the areas of hemorrhages and necroses. During histological research the tissue of the lymph node is practically absent in the result of the expansion of atypical tumor structures, which look like malignant tumor of testicles (seminoma).

**16. Central cancer of the lung.** A cut of lung is represented on the preparation. The expansion of grey tumor is seen in the center. It embraces the central bronchus, pressing it. The features of cellular and tissue atypism in the epithelial tissue without keratosis have been found during histological research.

**17. Adenoma of the thyroid gland.** A thyroid gland enlarged to 15 cm in the result of the expansion of tumor tissue appears like nodes on the preparation. The features of tissue atypism of

the gland are found during histological research of the tumor. This is the follicular adenoma.

**18. Cancer of the mammary gland.** A cut of mammary gland is represented on the preparation. One can see the expansion of tumor tissue around the papilla with the expanding of growth into the depth without definite borders. The features of cellular and tissue atypism of glandular structures with introduction infiltrating germination have been found during histological research of the tumor.

**19. Metastases of the cancer into the lung.** The lung, represented on the preparation, is stuffed with tumor nodes with the diameter of 0,5-3 cm of grey colour. The lung tissue is almost absent. The features of the cellular and tissue atypism of the glandular structures have been found during histological research of the tumor nodes.

**20. Submucous fibromyoma of the uterus.** The cut of uterus is represented on the preparation. It has two tumor looking nodes with the diameter of 6 cm of dense consistence and grey colour in the submucous layer. The features of the tissue atypism of the connective tissue and muscular structures have been found during histological research.

**21. Plane cellular cancer of the skin with keratosis.** A pies of skin with the expansion of the tumor looking like a cauliflower and with the exophytic germination on it surface is represented on the preparation. The features of cellular and tissue atypism with keratosis and infiltrating growth during histological research.

**22. Cancer's metastases of the mammary gland into the skin.** A pies of skin is represented on the preparation. One can

see the expansion of tumor nodes on its surface. They are of dense consistence without definite borders with the areas of hemorrhages and necrosis. Their diameter is from 2 to 5 cm. The features of cellular and tissue atypism of the glandular structures of the mammary gland have been found during histological research.

**23. Papillary cancer of the ovary.** An uterus and an ovary are represented on the preparation. The latter is enlarged to 10 cm in the result of the expansion of the tumor looking like a cauliflower. The tumor has exophytic germination. The features of the ovary have been found during histological research in the tissue of the tumor.

**24. Melanoma of the skin with ulceration.** On the preparation a tumor which has pigmented brims of brown colour represented. The surface of the tumor is ulcer changed, it is grey. The borders of tumor germination are absent. The features of cellular and tissue atypism of the melanin-making tissue which contains a slight quantity of pigment are found in the tumor during histological research.

**25. Adenoma of the adrenal glands with secondary changes.** A cut of the adrenal with the expansion of tumor with the diameter of 6 cm is represented on the preparation. It is yellow and has slime. The tumor has the tissue atypism of the adrenal parenchymal structures during histological research.

**26. Splenomegaly during leucaemia.** A spleen enlarged almost three times is represented on the preparation. The spleen tissue is of infirm consistence and cherry-grey colour with grey spots. During histological research in the parenchyma of the spleen the diffuse leucosis infiltration has been found. It substitutes the typical structures of the organ.

**28. The cancer of the skin.** A tumor is looking like a cauliflower without definite borders and with the exophytic growth is represented on the preparation. During histological research the features of cellular and tissue atypism of plane epithelial tissue of skin without keratosis has been found.

**29. Diffuse leucosis infiltration of the horseshoe kidney.** A horseshoe kidney with the spots of hemorrhages and the areas of grey colour on the surface is represented on the preparation. The expansion of tumor looking tissue of grey colour is seen in the hilum of the kidney. The features of expansion of leucosis cells are found during histological research in the parenchyma of the kidney and tumor looking formation.

**30. Fibroma with the necrosis.** Fibroma, a tumor of dense consistence with necrosis of tissue is represented on the preparation. The tumor is made of the connective tissue with the features of tissue atypism during histological research.

**31. Lymphatic leucaemia.** A part of mesenteriolum of the small intestine is represented on the preparation. The expansion of tumor looking nodes from 1 to 5-6cm is observed. The areas of hemorrhages are seen. The growth of lymphlooking tissue with the features of the expansion and cellular atypism are found during histological research.

**32. Myeloid retracted kidney.** A kidney with wavy surface and regions of hollows and grey uppers. The organ is of dense consistence. The features of the infiltration by the plasmoblasts and of the expansion of the connective tissue are found during histological research. The outcome of such changes – nephrosclerosis, amyloidosis and renal insufficiency.



**33. The porphyriuous spleen.** The spleen represented on the preparation is almost three times enlarged. The motley appearance of grey, dark-cherry, yellow and brown colours is seen on the cut. It is the result of the development of necrosis, hemorrhages, dystrophic changes and the infiltration of the parenchyma by the lymph elements and cells of Berezovsky-Sternberg, Hodgkin. Such changes in spleen are developed during Hodgkin's disease.

**34. The nephroblastoma.** The cut of a kidney is represented on the preparation, in the upper pole one can see the expansion of the grey-yellow tumor without definite borders with the areas of hemorrhages and necrosis. During histological research the features of cellular and tissue atypism looking like epithelial tissue of kidney ductules.

**35. The Peget's disease.** A mammary gland with the features of the deformation around the area and the intrusion of the nipple is represented on the preparation. During histological research the expansion of light Peget's cells and the infiltrative growth of tumor cells along the milky canals is found.

**37. The spleen during myeloleucosis.** Five times enlarged spleen is represented on the preparation. It's weight reaches 2 kg. The spleen is of infirm consistence and of cherry-grey colour. The expansion of myeloid cells have been found in the spleen tissue during histological research.

**42. The carcinomatous omentitis.** The tissue of the mesenterium of the large intestine with tumor looking formations with the diameter from 1 to 3 cm which are of dense consistence and grey-rose colour. During histological research the features of expansion of atypical glandular structures with the cellular atypism and inflammatory infiltration is found.

**43. The cancer of the kidney.** A cut of the kidney which is enlarged in the result of the growth of grey-yellow tumor in the upper pole without definite borders is represented on the preparation. The features of cellular and tissue atypism of the epithelial structures of the kidney have been found in the tumor during histological research.

**44. Lipoma.** A yellow tumor of the adipose tissue nearly 18cm in size is represented on the preparation. The features of tissue atypism of the adipose tissue have been found during histological research.

**46. Melanoma of the eye.** The cut of the eye with the expansion of dark-brown tumor without definite borders is seen on the preparation. The features of cellular and tissue atypism of the melanine formatting tissue have been found in the tumor during histological research.

**47. Adenoma of the adrenal.** A cut of the adrenal with yellow tumor expanding to 2 cm is represented on the preparation. It has areas with hemorrhages, necrosis and slime. The tumor is separated from the typical tissue by the capsule. The features of the tissue atypism of parenchymal structures have been found in the tumor during histological research.

**48. Melanoma of the skin.** A tumor with pigmented brown edges is represented on the preparation. The surface of the tumor is ulcer changed and of grey colour. The borders of tumor growth are absent. The features of cellular and tissue atypism of melanine make tissue with a small quantity of pigment have been found in the tumor during histological research.

**49. Metastases into omentum.** A mesenterium of the small intestine is represented on the preparation. Rose tumor nodes with the diameter of 1cm are seen. During histological research the substitution of the lymph tissue by the atypical glandular structures looking like the epithelial tissue of the membrane of the digestive tract have been found.

**50. Cancer of the larynx.** A larynx is represented on the preparation, on it's wall the expansion of grey tumor is seen. It narrows the larynx lumen. The features of cellular and tissue atypism of the epithelial tissue without keratosis have been found during histological research.

**51. Nevus of the skin with malignization.** A cut of skin is represented on the preparation. The tumor looking formation with the exophytic growth is seen on it's surface. It has areas of dark-brown pigmentation. The features of tissue atypism of the melanine make tissue with the occurrences of dysplasia and cellular atypism have been ground during histological research in the tumor tissue.

**52. Tecoma.** Enlarged to 10cm ovary is represented on the preparation. It's grey surface is wavy and has a dense consistence. The features of the tissue atypism of stromal component have been found during histological research in the tumor of the ovary.

**53. Granulous cellular tumor of the ovary.** An ovary enlarged to 25cm in diameter is represented on the preparation. The surface is tuberous in the result of expansion of grey tumor, which has a dense consistence. While a sick woman was alive the tumor displayed hormonal activity. The expansion of granulous cellular structures with the features of cellular and tissue atypism have been found during histological research of

the tumor.

**54. Atheroma.** The tumor of skin of 10cm in size is represented on the preparation. The tumor has outlined borders, in the cut one can see the secretion of fatty and sudoriferous glands which looks like "a cereal".

**55. Metastases of lymphatic sarcoma into the kidney and the liver.** Represented on the preparation:

- 1) the node of 7 cm in diameter with wavy surface and of grey-rose colour,
- 2) the kidney with numerous grey-rose nodes having diameter from 0,5 to 3cm,
- 3) the liver with the expansion of tumor looking formations of grey-rose colour under the capsule and in the profound of the organ. A picture of lymphatic sarcoma has been found during histological research in all tumor formations.

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# Навчальне видання

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