



Pathological anatomy. Atlas of gross specimens

Study guide In 2 parts

Part 1

General pathological processes



Ministry of Education and Science of Ukraine Ministry of Health of Ukraine Sumy State University

Pathological anatomy. Atlas of gross specimens

Study guide In 2 parts

Part 1

General pathological processes

Recommended by Academic Council of Sumy State University

Sumy Sumy State University 2016 УДК 616-091(075.3) ББК 52.51я73 П20

Compilers:

- A. M. Romaniuk, Doctor of Medical Sciences, Professor, Head of Pathology Department of SSU.
- L. I. Karpenko, PhD., Associate Professor of Pathology Department of SSU.
- R. A. Moskalenko, PhD., Associate Professor of Pathology Department of SSU.
- E. V. Kuzenko, PhD., Assistant of Pathology Department of SSU.
- H. Yu. Budko, PhD., Associate Professor of Pathology Department of SSU.
- S. V. Saulyak, PhD., Assistant of Pathology Department of SSU.
- M. S. Lyndin, PhD., Assistant of Pathology Department of SSU.
- A. V. Reznik, PhD Student of Pathology Department of SSU.
- A. M. Piddubnyi, PhD Student of Pathology Department of SSU.
- V. V. Sikora, PhD Student of Pathology Department of SSU.

Reviewers

- I. D. Duzhiy, Doctor of Medical Sciences, Professor, Head of General Surgery, Radiation Medicine and Phthisiatrics department of SSU.
- I. I. Starchenko, Doctor of Medical Sciences, Professor, Head of Pathological Anatomy with Sectional Course Department of the Ukrainian Medical Dental Academy.

Recommended for publication by Academic Counsil
Of Sumy State University as a study guide
(minutes № 5 of 11.02.2016)

Pathological anatomy. Atlas of gross specimens: Part 1. General pathological processes: Study guide / A. M., Romaniuk, L. I. Karpenko, R. A. Moskalenko, et al. – Sumy: Sumy State University, 2016. – 159 p.

УДК 616-091(075.3) ББК 52.51я73

- © Romaniuk A. M., Karpenko L. I., Moskalenko R. A., et al., 2016
- © Sumy state university, 2016

Content

				Р
accumulation Morphology of	of proteins, f pathologic acus is pigments.	hydrocarbor ecumulation Morpholog	of endogenous y of mineral	
compensation atrophy,	_	hyperplasia,	-	4
Case 2. Disturbance	of 	blood	circulation	55
Case 3. General concep	otion about inf	lammation		86
Case 4. General	conception	about	tumors	114

Case 1

Morphology of intracellular and extracellular accumulation of proteins, hydrocarbons and lipids. Morphology of pathologic accumulation of endogenous and exogenous pigments.

Morphology of mineral metabolism disease
Regeneration, adaptation and compensation processes:
hyperplasia, hypertrophy, atrophy, organization



Specimen for examination 1

Fatty dystrophy of liver (I stage)

It is an example of lipomatosis with the deposition of neutral fats in hepatocytes. Causes: 1 – hypoxia (chronic), chronic disease of respiration system, anemia; 2 – intoxication; 3 – infectious diseases; 4 – endocrinous and metabolic disturbances. Outcomes: 1) at elimination of cause fat may be resolved; 2) at protracted activity lesion develops.



Specimen for examination 2

Fatty liver (III stage)

The liver is enlarged, of dense cosistency, fine granulation of yellowish colour on the surface and in the cut is noted. The specimen represents the final stage of the parenchymal lipidosis when the greater part of hepatocytes is substituted by fatty inclusions with the atrophy of nuclei, destructive changes in hepatocytes, mesenchymal cellular inflammatory reaction and with the expansion of the connective tissue. Outcomes: the formation of cirrhosis and hepatic insufficiency.



Specimen for examination 3

Gallbladder stone

It is the solitary stone in size of 1,5 x 10 cm. It is the sign of mineral metabolism disturbance in organism and is accompanied with the development of the cholelithiasis. It has ligh-yellow colour in the cut, its surface is dark-brown, olive. Outcomes: cholelithiasis, calculous cholecystitis, decubitus of the gallbladder wall, mechanical jaundice.



Specimen for examination 4

Dercum's disease

Excessively developed deposition of neutral fat in subcutaneous tissue. It is an example of local deposition of fat also named lipomatosa dolorosa – painful lipomas. There are lots of nerve fibers which are pressed by fat and cause pain syndrome.



Specimen for examination 5

Muddy edema of the kidney

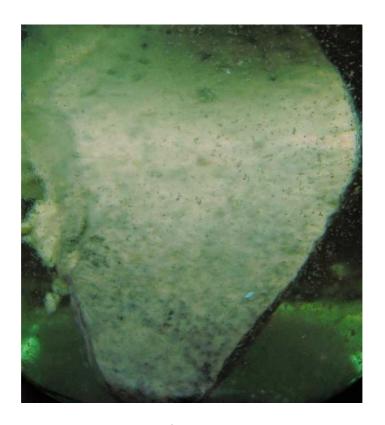
An example of parenchymal protein dystrophy, when the surplus of protein granules is accumulated in nephrotelium. Causes: infectious disease, intoxication, hypoxia, illness of the kidney itself: glomerulonephritis, pyelonephritis and so on. Outcomes: the functions of the kidney are decreased.



Specimen for examination 6

Coal miner's lungs

An example of exogenous pigmentosis. The organ becomes dense with dark grey and black inclusions with overgrowth of connective tissue. In the cut: focal depositions of coal dust and sclerotic changes and thickening of bronchial walls. Outcomes: the function is decreased, flatus metabolism is aggravated in the result of sclerotic changes, inflammations (tuberculosis) often accompany.



Specimen for examination 7

Sago spleen

Causes: disturbance of protein metabolism that is observed after chronic diseases: chronic abscess (of 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.



Specimen for examination 8

Fatty kidney at urolithiasis

The kidney is enlarged, its surface is tuberous. Atrophy of parenchyma, numerous cavities filled with stones are seen in the cut. Atrophied parenchyma is substituted by fatty tissue that is an example of local lipidosis with deposition of neutral fat.



Specimen for examination 9

Proteinosis of liver

It is an example of parenchymal proteinosis with the deposition of protein granules in hepatocytes. The liver is enlarged, sluggish, of grey-yellow colour. Causes: hypoxia, intoxication, infectious diseases (viral hepatitis), metabolic-endocrinous disturbances. Outcomes: the function is decreased, in the case of progression of the destructive changes and afterwards cirrhosis is developed.



Specimen for examination 10

Amyloidosis of the kidney (white kidney)

It is an example of mesenchymal proteinosis with the deposition of anomalous amyloid protein. The organ is enlarged, sluggish, grey on the surface and in the section, 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.



Specimen for examination 11

Muddy edema of the kidney with the excessive deposition of fat in pelvis

It is an example of parenchymal proteinosis, the deposition of fat – mesenchymal lipidosis. The kidney is enlarged, sluggish, the presense of grey-yellow areas is observed and tuberosity on the surface as well. Causes: chronic disease of kidneys taking into account the tuberosity, chronic hypoxia. Outcomes: decreased function with development of chronic renal insufficiency.



Specimen for examination 12

Aortic atherosclerosis

It is an example of the disturbanse of cholesterin metabolism and its ethers – stromal lipidosis. The intima of the aorta is tuberous with numerous orange spots (the preparation is painted with sudan) – deposition of lipids, ulcerations and hemorrhages are present.



Specimen for examination 13

Acute gastric ulcer

Atrophy of the mucous membrane, the area of defect 1 x 1 cm and the varicose veins in submucous tissue are seen. Acute gastric ulcer may result in hemorrhage due to erosion of the vessel with the accumulation of the chlorohematin in stomach, it causes "coffee grounds" vomiting.



Specimen for examination 14

Atherosclerosis of aorta with complication

The intima is covered with numerous atherosclerotic patches (stromal lipidosis with the deposition of cholesterin and its ethers), areas of ulceration and parietal thrombi. In the result of progression of atherosclerosis with the destructive changes in the wall, the rupture of the wall or the formation of aneurysm may occur.



Specimen for examination 15

Fatty kidney

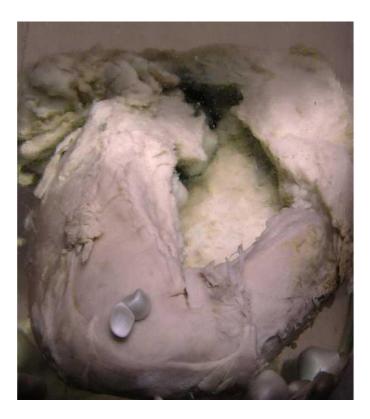
It is an example of mesenchymal stromal lipidosis with deposition of neutral fat. The organ is enlarged, sluggish, the excessive deposition of fat in the hilum of the kidney pelvis is seen on the surface and in the cut. Causes: hypoxia, intoxication, chronic disease of kidneys. Outcomes: decreased function with the development of renal insufficiency.



Specimen for examination 16

Aortic atherosclerosis

On the surface of the intima numerous yellow spots are seen, they protrude over the surface at 2–3 mm – it is deposition of lipids. Outcomes: in the case of progression, complications such as ulceration, hemorrhages, calcinosis and rupture of the wall are developed.



Specimen for examination 17

Calculous cholecystitis

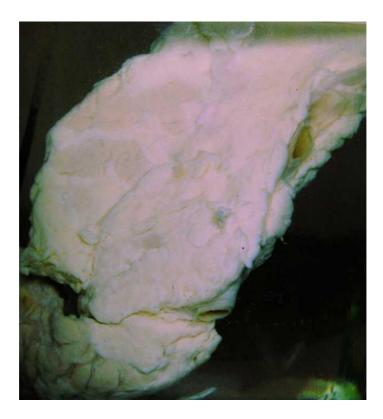
The gallbladder is enlarged. Calculous cholecystitis means the deformation of the gallbladder wall due to the stones in the lumen. Outcomes: the development of the mechanical jaundice, progression of the inflammatory changes in the wall of the gallbladder with spreading to the surrounding tissues.



Specimen for examination 18

Hyalinosis of spleen capsule

It is an example of stromal proteinosis which is developed after protracted inflammatory changes in the capsule of spleen. The capsule is thickened, grey focal depositions are present. Specimen for examination N_2 27 spleen is descreased, massive depositions of hyaline in capsule are observed. The capsule is much thickened. It may be observed at the stages of one process: N_2 10 – primary stage, N_2 27 – final stage. Outcome: the function is decreased with the atrophy of the organ and sclerotic changes.



Specimen for examination 19

Fatty pancreas

An example of stromal lipidosis fat (neutral) is deposed in the stroma of the organ. Parenchyma is atrophied. In the cut: the expansion of adipose tissue and the reduction of the dimensions of pancreas parenchymatous structures can be seen. Outcomes: both excretory and incretory functions are aggravated.



Specimen for examination 20

Sebaceous kidney

The organ is enlarged, of infirm consistency. It has sebaceous colour on the surface and in the cut. The structure of the organ in the cut is damaged, the border between cortical and medulla substance isn't defined. Outcomes: the function is decreased; the development of chronic renal failure.



Specimen for examination 21

Muddy edema of fatty kidney

It is an example of parenchymal proteinosis when the excessive amount of protein granules is deposed in nephrothelium. The organ is enlarged, sluggish, there are light grey spots on the surface. In the cut: the picture of parenchyma is lost. Causes: chronic disease of kidneys taking into account the tuberosity, 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 progression, the dystrophycal changes turn into the destruction of parenchyma and expansion of the connective tissue.



Specimen for examination 22

Hypertrophy of the myocardium of the left heart ventricle

The enlargement of the wall of the left heart ventricle and hypertrophy of the papillary muscle. There is a myogenic hypertrophy. Such hypertrophy develops at primary stages of heart decompensation. It is connected with the factor that the muscle can't bear enlarged loading and the heart cavity enlarges. Dystrophic changes develop in cardiomyocytes. Outcomes: cardiac insufficiency.



Specimen for examination 23

Hyalinosis capsule of spleen

It is an example of stromal proteinosis which develops after prolonged inflammatory changes in the spleen capsule. The spleen is reduced in size, massive deposits of hyaline in capsule which is much thickened are observed.



Specimen for examination 24

Brown atrophy of the myocardium

It is an example of lipofuscin deposition in the tissues of the heart. Causes: pathologic development at cachexy, general exhaustion of the organism. The organ is sluggish, the chambers are expanded, 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.



Specimen for examination 25

Cysts in liver

Numerous cysts are seen under the capsule of the liver. It is an example of atrophy due to pressure. There is thinning and atrophy of parenchyma at the obstruction of bile ducts.



Specimen for examination 26

Tonogenous hypertrophy (concentrated myocardial hypertrophy)

Causes: hypertonic disease, aortic valve defects; develops as an example of compensatory hypertrophy. Myocardium is hypertrophied due to hyperplasia of intracellular organoids. Stromal component is hypertrophied. Outcomes: transition to the eccentric hypertrophy and development of cardiac insuffciency.



Specimen for examination 27

Pancreonecrosis

The areas of grey colour in the parenchyma of the organ are seen. It is the foci of fat necrosis or fatty degeneration of the pancreas. Causes: acute destructive pancreatitis which is accompanied by the excretions of the excessive quantity of ferments and direct necrosis take place. Outcomes: the areas of necrosis are substituted by the connective tissue, the function is decreased, acquired diabetes is observed.



Specimen for examination 28

Necrosis of the intestinal wall

The atrophy of the mucous membrane is seen, the intestinal wall has focal black changes – the areas of necrosis which are developed in the result of blood supply disturbance. Outcomes: perforations with the development of peritonitis.



Specimen for examination 29

Secondary contracted kidney

The kidney is tuberous, of dence consistency, with numerous cavities and protuberances. The cavities are the areas of sclerosis. The protuberances are the areas of hypertrophy of preserved parenchymal structures of the kidney. Causes: after the glomerulonephritis and pyelonephritis. Outcomes: decrease of the function, development of insufficiency.



Specimen for examination 30

Hemorrhagic pulmanory infarction

The lung is dark-red. The red thrombi are seen in the lumen of the pulmonary artery in the cut. These thrombi became the cause of pulmanory infarction. The organ is enlarged, dense. Outcomes: development of the respiratory failure, perifocal pneumonia; formation and development of tumor ous process in the area of the cicatrice.



Specimen for examination 31

Necrotic nephrosis

The pale cortical layer and plethoric medullary layer are seen. Causes: at intoxication of the organism, traumatic shocks and shocks of other origin. There is an example of direct and indirect necrosis by origin. The direct one develops in the epithelium of small channels (excretion of toxins). Indirect – in the glomus in the result of ischemia of cortical substance – a pale cortical layer. Outcomes: acute renal failure, death.



Specimen for examination 32

Hypertrophic growth of 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 their possibility of degeneration into malignant tumor – adenocarcinoma. It is necessary to carry out the operation in this case.



Specimen for examination 33

Atrophy of the spleen

It can be seen that the spleen is reduced in size, the capsule and the parenchyma are contracted. Causes: blood supply deterioration, age-related changes. The parenchyma is atrophied and substituted by the connective tissue, the function is decreased.



Specimen for examination 34

Myocardial infarction with parietal thrombi

One can see: the colouring of the wall of the left heart ventricle is changed into dark. There are depositions of thrombi masses on the surface of endocardium. Causes: accumulation of the tissue thromboplastin activates mechanism of thrombosis. Outcomes: parietal thrombi may be the sourse of thromboembolism in the systemic circulation.



Specimen for examination 35

Transmural myocardial infarction

Macroscopically: the area of the left heart ventricle wall painted with dark-red colour, damage of cardiac muscle which spreads through the whole thickness of the wall. Causes: blood supply disturbance in the result of thrombosis or spasm of coronary artery. Outcomes: myomalacia (rupture of wall of the heart), sclerosis, the disturbance of heart rhythm with block.



Specimen for examination 36

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 restricted. Concentric hypertrophy is a display of compensative hypertrophy which develops at hypertension in the systemic circulation, heart disease (aortic valve). Outcomes: without elimination of the cause cardiac decompensation or eccentric hypertrophy is developed.



Specimen for examination 37

Red infarction of the intestine

It is developed in the result of thrombosis of mesenteric arteries. Red infarction occurs in the intestine in connection with the peculiarities of blood supply, namely the numerous anastomoses between the branches of mesenteric arteries. The dark-red painted wall is seen, the intestine itself is malformed. Outcomes: red infarction leads to the development of gangrene, perforation of the intestinal wall and peritonitis.



Specimen for examination 38

Gangrene of the small intestine

The area of the intestine is black and has clear boundaries. Causes: blood supply disturbance (thrombosis of mesenteric arteries). Outcomes: destruction of the wall with the development of peritonitis.



Specimen for examination 39

Gangrene of the lower extremity

It is an example of necrosis of black colour. Necrotic areas of black colour are seen on the foot. The extremity is enlarged, swollen, with exfoliation of the skin (moist gangrene). Causes: blood supply disturbance, getting of the anaerobic infection, impact of thermal factors (burns, frostbites).



Specimen for examination 40

Fungous kidney

The kidney is tuberous on the surface with features of embryonal development. It is seen in the cut that the parenchyma is represented as fungus with numerous small cavities. Causes: disturbance of prenatal development of kidney, absence of the connection between the tubules and the glomerules. In the result of this primary urine is accumulated in the glomerules, presses them and causes atrophy. It is an example of local prenatal atrophy from presure. Outcomes: renal insufficiency.



Specimen for examination 41

Hypertrophy of the spleen (splenomegaly)

The spleen is enlarged in 3–4 times, of dark-cherry colour and dense consistence. These changes occur at the diseases of blood: anemia, leucosis, hemoblastosis. The enlargement of spleen is the result of compensatory hypertrophyc changes. Outcomes: the function is increased, it becomes an organ of haemopoiesis, sometimes the rupture at the minor injury may occur.



Specimen for examination 42

Multiple infarctions of the spleen

The areas of changed colour are seen. They are grey and dark-red. The infarctions of the spleen appear at formation of thrombi in the small branches of the spleen artery. The example is vascular necrosis. Outcomes: growth of connective tissue, sclerosis.



Specimen for examination 43

White infarction with hemorrhagic zone in liver

In the cut: the areas of grey colour are separeted from the sound tissue by the dark zone. Causes: thrombosis of the branches of liver artery. Outcomes: formation of cicatrice (expansion of the connective tissue).



Specimen for examination 44

The bones of the scull at hydrocephaly

The bones are tool thin and transparent. Causes: accumulation of fluid in the scull cavity (hydrocephalus). It is an example of atrophy due to pressure.



Specimen for examination 45

Bullous emphysema of the lung

There is a big bladder in the upper part of the lung. Cause: occurs in the result of the excessive accumulation of the air in the tissue of the lung. It is observed at the small bronchus obstruction by mucus. The atrophy of interalveolar membranes and their rupture are observed. Local atrophy takes place due to air pressure.



Specimen for examination 46

Atrophy of the spleen

It can be seen that the spleen is reduced in size, the capsule and the parenchyma are contracted. Causes: blood supply deterioration, age-related changes. The parenchyma is atrophied and substituted by the connective tissue, the function is decreased.



Specimen for examination 47

Atrophy of the spleen

It can be seen that the spleen is reduced in size, the capsule and parenchyma are contracted. Causes: blood supply disturbance, age-related changes. The parenchyma is atrophied and substituted by the connective tissue, the function is decreased.



Specimen for examination 48

Hydrocephalus

Cerebral hemispheres enlarged in size are represented, the brain parenchyma is sharply thinned and looks like the wall of capsule. It is an example of local atrophy from liquor pressure which is accumulated in lateral ventricles at the disturbance of its outflow.



Specimen for examination 49

Hydronephrosis

The kidney is enlarged with single bladders. The surface is tuberous due to hypertrophy of preserved parenchymal structures and atrophy of the surrouding areas. The pelvis of the kidney is extended. At 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 the result of obstruction by the stone. Outcomes: the function is decreased, inflammation is developed.



Specimen for examination 50

Subendocardial myocardial infarction

The cut of the left ventricle in which the inner wall has changed dark-brown colouring is seen. It is an area of necrotic lesion in the result of blood supply stopping. Outcomes: 1) parietal thrombi in the heart cavity, thomboembolism in the systemic circulation; 2) development of cardiosclerosis, cardiac insufficiency. It is an example of vascular necrosis.

Case 2 Blood circulation disturbance



Specimen for examination 1

Apostematous pyelonephritis

The kidney is enlarged, sluggish, grey and motley. The foci of pale-grey colour (d = 0,2-0,8 cm) are seen. It is abscesses under the capsule. Embolism of microorganisms takes place when the microorganisms spread in the organism hematogenously at sepsis.



Specimen for examination 2

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 diabrosin at the meningococcal infection. Outcomes: acute suprarenal insufficiency.



Specimen for examination 3

Shock kidney

The pale cortical layer and the dark-blue plethoric medullary one are seen. Such changes occur at shock conditions. There are profound disturbances of blood circulation in internal organs. Morphological changes: ischemia in the cortical layer, artery spasms, plethora in the medullary layer. Outcomes: death from acute renal failure.



Specimen for examination 4

Parietal thrombus

Deep injury of the wall with atheromatosis and formation of the thrombus located in the lumen of the aorta which disturbs the blood circulation. Causes: activation of the tissue thrombokinase which is the reason of the thrombi formation.



Specimen for examination 5

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 diabrosin at the meningococcal infection. Outcomes: acute suprarenal insufficiency.



Specimen for examination 6

Hemorrhage under the capsule of the kidney

The limited accumulation of blood under the capsule of the kidney is seen. Causes: mechanic blunt trauma with the rupture of the vessel and blood accumulation. Outcomes: organization, lysis with secondary hemorrhage into the retroperitoneal space.



Specimen for examination 7

Brown induration of the lung

The tissue is brown in the cut, the parenchyma is dense. Causes: blood outflow disturbance from lungs along pulmanory veins. Such changes occur at: 1) heart disease, 2) myocarditis, 3) ischemic heart disease. Stagnation is observed in the lungs, imbibition of the parenchyma by hemosiderin and expansion of the connective tissue. Outcomes: the function is decreased, inflammation.



Specimen for examination 8

Subarachnoidal hemorrhage

One can see the accumulation of blood in the pia mater and in the vascular plexus without clear borders. Causes: hemorrhage per rexin at the hypertensive attack.



Specimen for examination 9

Hematoma of the cerebrum

The dark-red areain the size of 2 cm in size with the destruction of the cerebral substance – hematoma is seen in the cut. Causes: haemorrhagia per rexin, per diabrosin. Outcomes: hemorrhage with necrosis (colliquative), that's why lysis of the tissue and formation of capsule with hemosiderin develop.



Specimen for examination 10

White infarction of the kidney

The area of triangular form of grey colour in size of 1x1,5 cm is seen in the cut – it is white infarction. It occurs at thrombosing or obturation of the small branch of renal artery by the atherosclerotic patch. Outcomes: the area of necrosis is replaced by the connective tissue and a cicatrix in this place with hollow appears.



Specimen for examination 11

Thrombosis of the aortic bifurcation with recanalization

The extended lumen of the aorta in the place of bifurcation which is filled with mixed thrombus is seen. In the middle of the thrombus one can see the canal. It is an example of favourable outcome of thrombus.



Specimen for examination 12

Thromboembolism of the pulmonary artery

Causes: 1) thrombus detachment from the veins of the lower extremities at varicosity; 2) thrombus from the vessels of the small pelvis organs after operations; 3) stagnant thrombi at chronic cardiac insufficiency. Thromboembolism of the pulmonary artery often occurs after operations. Outcomes: 1) pulmonary infarction; 2) death from pulmo-coronary shock.



Specimen for examination 13

Hydronephrosis

It is an example of the fluid content disturbance in tissues. The enlargement of pelvises is seen which occured in the result of the accumulation of urine at the ureteral obstruction by a stone. Outcome: renal insufficiency.



Specimen for examination 14

Aneurism of the big popliteal vein with thrombosis

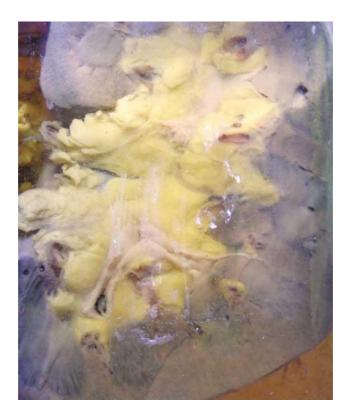
The sacciform formation in diameter of 10 cm is seen. Dilated thrombi are often formed in such aneurisms which may be the source of thromboembolism of the renal artery.



Specimen for examination 15

Chronic bronchitis with thromboembolism of the small branches of the pulmonary artery

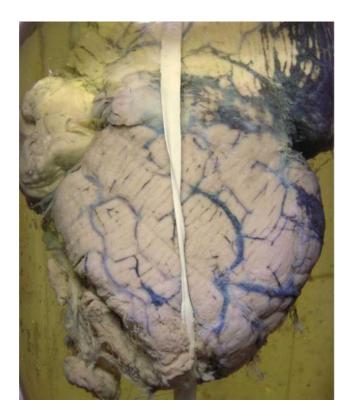
The bronchial wall thickening, sclerotic changes of the pulmonary tissue and thrombi in the lumen of the small branches of pulmonary tissue and artery are seen. The appearing of thromboembolism is explained by the chronic pulmonary and cardiac pathology with the formation of stagnated thrombi. They are the source of thromboembolism of pulmonary artery.



Specimen for examination 16

Cyanotic induration of the kidney (venous plethora of the kidney)

The kidney is enlarged and dark-blue in the result of the stagnation of venous blood. Causes: 1) thrombosis of kidney veins; 2) general venous plethora which occurrs at: chronic myocarditis, endocarditis, ischemia, respiratoty organs diseases. At cyanotic induration the expansion of the connective tissue and the induration of the organ is observed.



Specimen for examination 17

Hemorrhage into the cerebellum

The subarachnoid accumulation of blood in the hemispheres of the cerebellum is seen. Causes: haemorrhagia per rexin at the rupture of the cerebellum artery and at the hypertensive attack.



Specimen for examination 18

Varicose veins in the mucous membrane of the stomach

Dilated veins in submucous layer and atrophied mucous membrance are seen. Causes: blood circulation disturbance in the liver at portal cirrhosis. Consequently, portacaval anastomoses are opened. Hemorrhages often occur from such veins.



Specimen for examination 19

Haemopericardium

Accumulation of blood that press the heart is seen. Besides, the changed structure of cardiac muscle with its destruction is observed. Causes: rupture of the heart wall or injury of cardiac muscle with knife. Outcomes: sudden death.



Specimen for examination 20

Nutmeg liver

Primary stage (hepar moschatum simplex and h. m. adiposum), the liver is enlarged, sluggish, yellow-brown with numerous dark-red spots on the surface and in the cut — dilated and overfilled central veins with diapedesis of blood outside the vascular wall. Yellow colour and sluggishness are explained by fatty dystrophy. Causes: hypoxia.



Specimen for examination 21

Nutmeg liver

The liver is reduced in size, dense. It has granularity on the surface and in the cut. The areas of yellow colour and numerous dark red spots are seen. Granularity, tuberosity and density are explained by growth 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, thrombophlebitis of hepatic veins.



Specimen for examination 22

Thrombosis of the aorta

Deep injury of the wall with atheromatosis and thrombus formation which closes the lumen of the aorta and disturbs the blood circulation is seen. Causes: activation of the tissue thrombokinase which is the reason of the thrombi formation.



Specimen for examination 23

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 occurs in the result of hemorrhage into the area of necrosis at small damages, development of pneumonia before infarction, death.



Specimen for examination 24

Hemorrhage into the lung

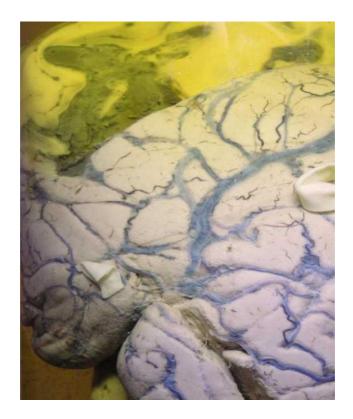
The blood accumulation without clear borders is seen. Causes: arrosion of the vessel wall under the visceral pleura which looks like grey spots in diameter of 0,3–0,4 cm under the pleura.



Specimen for examination 25

Hemmorrhage into the brain stem

Hemorrhage into the brain stem with its destruction (hematoma) is seen. Causes: the rupture of the artery wall (haemorrhagia per rexin) is observed at atherosclerosis, hypertension; arrosion of the vessel wall (haemorrhagia per diabrosin) – at tumorous processes. Outcomes: lethal.



Specimen for examination 26

Red softening of the cerebral tissue

The considerable hemorrhage with the destruction of the parenchyma – haemorrhagic stroke which occurs in the result of the vessel wall rupture at hypertension is seen in the depth of the brain. Outcomes: death.



Specimen for examination 27

Hemorrhage into the lateral ventricles

The accumulation of blood in the lateral ventricle of the cerebrum is seen. Such hemorrhages occur at rupture of the cerebral artery during the hypertensive attack. Outcomes: death.



Specimen for examination 28

Metastases of the stomach cancer into the liver

Numerous foci of grey colour and various diameter which protrude above the surface of the liver are seen. It is an example of the tissue embolism, the structures of stomach tumor get into the liver through the system of the portal vein.



Specimen for examination 29

Pulmonary embolism

Lung tissue is dark-red and dense. Red colouring is caused by the development of pulmonary infarction. The example of vascular necrosis — red colouring occurs in the result of haemorrhages in the area of necrosis of bronchial arteries. Outcomes: the organization of areas of necrosis at small lesions, development of preinfarction pneumonia, death.



Specimen for examination 30

Cancer metastases in the lungs, focal hemorrhage

Numerous nidi of grey colour of different diameter which protrude over the surface of the lung are seen. Hemorrhage is observed near them. It is an example of tissue embolism when the structure of the tumor with systemic circulation gets into the lung. The mechanism of hemorrhage is the result of increased permeability of blood vessels.

Case 3

 $General\ conception\ about\ inflammation$



Specimen for examination 1

Tuberculoma

The cut of the lung is seen on the preparation, the grey area with clear borders 3 cm in diameter is observed. The area of lesion is a nidus of destructive necrotic changes of caseous character. A thin capsule with the features of productive granulomatous inflammation of specific character is formed around the nidus of lesion. It is an example of alterative inflammation. Outcomes: spreading to the surrounding tissues (spreading of the tuberculosis inflammation).



Specimen for examination 2

Fibrous cavernous tuberculosis

The wall of the cavity is a dense fibrous tissue with the features of the productive granulomatous inflammation which is characteristic for tuberculosis (caseous necrosis, lymphocytic infiltration, epithelioid cells, Langhans giant cells). The caseous (tyroid) necrotic masses are seen in the centre of the cavity (cavern). Outcomes: development of chronic pulmonary insufficiency in the connection with pneumosclerosis and cardiac insufficiency; development of amyloidosis.



Specimen for examination 3

Chronic abscess of the lung

The cut of the lung is presented on the preparation, it has a cavity formation filled with grey cream-like masses. The walls of the cavity are rough, presented by fibrous tissue. It is an example of exudative (purulent) inflammation with chronic course. Outcomes: chronic abscess may be the source of purulent inflammations spreading in organs – sepsis.



Specimen for examination 4

Purulent salpingitis

The enlarged uterine tube with the thickening up to 1,5 cm is seen on the specimen. The wall of uterine tube is edematous with dilated vessels. Purulent exudate appears diffusely through all layers of the tube. There are erythrocytes in the lumen. The destructive changes, hemorrhages and depositions of purulent masses of diffuse character are seen within the wall. It 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, infertility.



Specimen for examination 5

Ghon's focus

The cut of the lung is presented on the preparation. A grey spot with clear borders and 3 mm in diameter under the pleura is seen. It is an example of the productive granulomatous inflammation of the specific character which occurs at tuberculosis infection. Outcomes: sclerosis and petrifacation, in the case of progression the generalization of the tuberculosis process is possible.



Specimen for examination 6

Hashimoto's thyroiditis

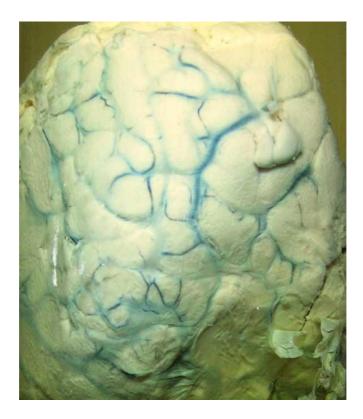
It is an example of chronic autoimmune inflammation of the thyroid gland. Causes: partial defect of the immune system in the result of which in the cells of the endocrine glands occur specific morphological changes (from lymphoplasmacytic infiltration to fibrous replacement of gland tissue). Outcomes: thyroid gland failure, fibrosis.



Specimen for examination 7

Hemorrhagic tracheobronchitis

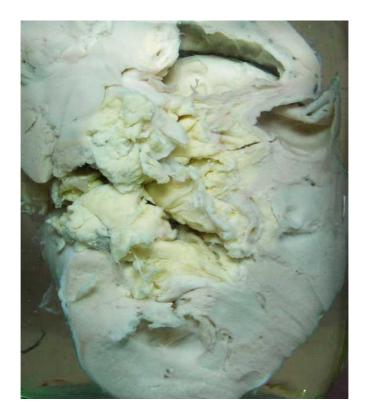
The cut of the trachea and great bronchus is presented on the preparation. The petechial hemorrhages of dark-red colour in the mucous membrane are noted. It is an example of exudative inflammation (hemorrhagic). Causes: virus infections, especially dangerous ones. Outcomes: resorption, organization.



Specimen for examination 8

Purulent meningitis

The cerebrum is represented on the preparation. The depositions of grey purulent masses on the surface of the cerebral membranes are seen. It is an example of exudative inflammation. Outcomes: purulent meningitis often leads to lethal outcome or it may cause the organization of cerebral membranes with fibrosis and the circulation of liquor disturbance.



Specimen for examination 9

Abscess of the kidney

The cut of the kidney is seen on the preparation, in the upper pole of which is a cavity. It is filled with grey cream-like masses. The walls of the cavity are rough. It is a kind of exudative inflammation (purulent). Outcomes: expansion of purulent process to the adjacent tissues of the kidney with the development of paranephritis, pyonephrosis, sepsis.



Specimen for examination 10

Basal meningitis

The base of the brain with the deposition of fibrinous membranes and purulent masses of cream-like character in the cerebral membrane is presented on the preparation. It is an example of exudative inflammation of mixed type (purulent-fibrinous). Causes: microorganisms (more often meningococcal infection). Outcomes: organization with liquor circulation disturbance.



Specimen for examination 11

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. It is an example of exudative inflammation of mixed character. Outcomes: organization and formation of adhesions; in the case of destructive changes progression perforation with development of peritonitis occurs.



Specimen for examination 12

Pleural empyema

The cut of the parietal leaf of pleura is presented on the preparation. The cavity is bounded by the fibrous tissue. The accumulation of grey cream-like purulent masses is noted in the cavity. 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.



Specimen for examination 13

Fibrinous adhesive pleurisy

A part of the lung covered with visceral and parietal leaves of pleura is presented on the preparation. 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 respiratory dysfunction.



Specimen for examination 14

Abscess of the cerebellum

There is a cavity in the centre of cerebellum formed without clear borders. It is filled with grey cream-like masses. It is the example of exudative (purulent) inflammation. Outcomes: the purulent process may resolve; organization; generalization with the development of the purulent encephalitis, meningitis.



Specimen for examination 15

Purulent fibrinous endometritis

The deposition of fibrinous and purulent masses of darkgrey colour with the nidi of hemorrhages is noted on the mucous membrane. It is an example of the exudative inflammation (mixed variant). Outcomes: organization; spread of inflammation to the surrounding tissues with the development of parametritis and sometimes sepsis.



Specimen for examination 16

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. It is an example of exudative inflammation of mixed character. Causes: infections, urine stagnation. Outcomes: sclerotic changes.



Specimen for examination 17

Productive esophagitis

The wall of the esophagus is seen on the preparation, the formation of grey colour polypi with proliferation of epithelium on its mucous membrane is observed. Causes: infections. Outcomes: organization, malignization.



Specimen for examination 18

Croupous pneumonia

Croupous pneumonia is a disease at which one or a few lobes of lungs are damaged (lobar pneumonia), fibrinogenous exudate (fibrinogenous, or croupous pneumonia) appears in alveoli, and fibrinogenous thin membranes appear on pleura (pleuropneumonia). The causative agent of illness is pneumococcus.



Specimen for examination 19

Polyposis of the stomach

Polypus is an example of productive inflammation which is characterized by the inflammative 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 into cancer. After operative removal it often recurs.



Specimen for examination 20

Antenatal peritonitis

The organocomplex of a new-bom (infant) is seen on the preparation. There is deposition of threads of fibrin on the peritoneum. It is an example of the exudative fibrinous inflammation which occurs at the prenatal infection of the fetus. Outcomes: lethal.



Specimen for examination 21

Fibrinous pleurisy

A part of the lung with fibrinous membranes on the visceral pleura is presented on the preparation. It 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.



Specimen for examination 22

Fibrinous pericarditis

The heart with the deposition of fibrinous masses on the epicardium and pericardium is seen on the preparation. It is an example of exudative (fibrinous) inflammation. Causes: endogenous intoxications. Outcomes: resorption; organization with the formation of adhesions with the following cardiac insufficiency.



Specimen for examination 23

Meningococcal meningitis

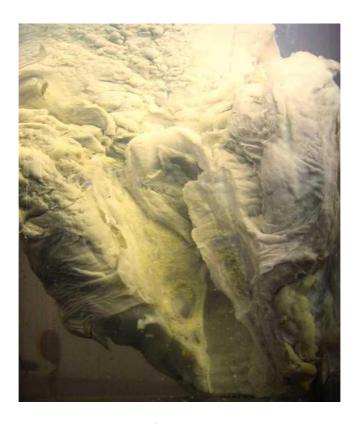
The cerebral hemisphere is seen on the preparation, the deposition of fibrin in the cerebral membranes is noted, the pia mater is muddy and opaque. It is an example of exudative inflammation. Outcomes: organization of fibrin with the liquor circulation disturbance.



Specimen for examination 24

Chronic gastritis

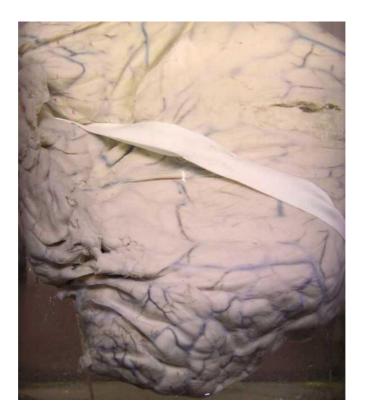
The wall of the stomach is seen on the preparation. The areas of atrophy, hypertrophy and the deposition of mucus and the areas of hemorrhages are noted in the mucous membrane of the stomach. It is an example of exudative (catarrhal) inflammation of mixed variant (catarrhal-hemorrhagic). The chronic course led to the atrophic changes in the mucous membrane. Outcomes: chronic atrophic gastritis is regarded as precancerous processes.



Specimen for examination 25

Fibrinous inflammation of the upper respiratory tract

The organocomplex is represented on the preparation which includes larynx, trachea and other organs of mouth cavity and neck. There are grey membranes with loose consistency on the mucous membrane of the larynx and trachea. They are not closely fixed to the mucosa and are easily separated. Outcomes: the membranes may be disrupted and cause the aspiration of the lower respiratory tract with the development of pneumonia, asphyxia.



Specimen for examination 26

Purulent meningitis with the abscessing

Muddiness, diffuse deposition of grey cream-like masses and nidal destructive changes in diameter up to 2 cm are noted in cerebral membrane and brain tissue. It is an example of exudative purulent inflammation. Causes: microorganisms, especially meningococci. Outcomes: organization; formation of commissures, liquor circulation disturbance.



Specimen for examination 27

Fibrinous-purulent pleurisy

The lung with the inflammation of pleura is presented on the preparation. The visceral pleura is thickened due to 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; development of the pleural empyema.

Case 4 General conception about tumors



Specimen for examination 1

Polypous cancer of the stomach

The wall of the stomach is with the signs of mucous membrane hypertrophy. The formation in the form of crater takes place in the center of preparation in the depth of which is polypoid growth in diameter up to 2 cm. At histological examination of the injured area of stomach wall the growth of atypical glandular structures with numerous pathological mitoses and cellular atypism is revealed.



Specimen for examination 2

Fibromatous node with secondary changes

The uterus with the node-like grow in diameter up to 15 cm is presented. The node has a fibrous structure and dense consistency in the cut. There is hemorrhage of dark colour in the separate areas of it. At histological examination of the node the signs of tissue atypism among smooth muscle and connective tissue structures were revealed.



Specimen for examination 3

Lymph nodes at lymphogranulomatosis

The lymph nodes of grey colour in diameter of 5 cm of dense consistency is presented. Histologically the picture of lymph node is effaced due to growth of connective tissue, hyalinosis, proliferation of lymphocytes, plasmocytes, epithelioid cells, histiocytes and multinuclear Beresovsky – Shternberg's cells, small and large Hodgkin's cells.



Specimen for examination 4

Carcinomatosis of the peritoneum

The peritoneum wall is presented on the preparation. The tumour formations in diameter up to 1 cm with the exophytic growth are seen on the surface. The features of cellular and tissue atypism of glandular structures are revealed in the tumours during histological examination.



Specimen for examination 5

Metastasis of stomach cancer into pancreas

In the cut of pancreas tissue are seen numerous nodal formations in diameter of 1–2 cm of grey color separated from parenchyma by the capsule. Besides, in the glands of tumorous nodules the signs of cellular atypism with numerous pathological mitoses are revealed. The described data testifies about metastasis of adenocarcinoma from the stomach into pancreas.



Specimen for examination 6

Fibromatous node with secondary changes

The uterus with the node-like grow in diameter up to 12 cm is presented. The node has a fibrous structure and dense consistency in the cut. There is hemorrhage of dark colour in the separate areas of it. At histological examination of the node the signs of tissue atypism among smooth muscle and connective tissue structures were revealed.



Specimen for examination 7

Fibromyoma of the uterus with hemorrhages

The cut of the uterus wall is presented on the preparation. The growth of tumour tissue with the areas of hemorrhages and necroses are seen. The features of the tissue atypism in muscular and connective tissue structures are revealed during histological examination.



Specimen for examination 8

Plural adenomas of thyroid gland

A thyroid gland is enlarged up to 15 cm. The numerous tumorous formations of pink colour, 1–2 cm in diameter which have clear borders due to capsule are seen in parenchyma of the gland. Histologically – growths of follicular ephitelium which forms adenomatous structures with the signs of tissue atypism are revealed in tumorous nodes.



Specimen for examination 9

Fibroma of the uterus

The cut of uterus wall with the growth of tumour tissue with the areas of hemorrhages and necroses is presented on the preparation. The features of tissue atypism in the connective tissue are revealed in the tumour during histological examination.



Specimen for examination 10

Metastases of cancer to inguinal lymph nodes

The enlarged lymph nodes in diameter of 3 cm which are located in the subcutaneous-adipose tissue. The tumourous node has cystic formations in the cut. Histologically – the atypical glandular structures are revealed in tissues of lymph nodes what testifies about presence of lymphogenous metastases of cancer.



Specimen for examination 11

Adenoma of the kidney

The growth of tumorous nodule of greyish-yellow colour in diameter of 4 cm is observed in the upper pole of the kidney. Histology of tumour shows the presence of growth of renal tubular epithelium with the signs of tissue atypism and expansive growth what is characteristic for benign tumour — light-cellular adenoma because the cytoplasm of epithelial tissue had the light structure.



Specimen for examination 12

Cancer of the kidney

The kidney enlarged due to growth of numerous nodules of greyish-yellow colour is presented. A tumour does not have clear borders that testifies about its infiltrative growth. Histologically – there are signs of atypical epithelial cells growth in tumour with numerous pathological mitoses. Tumorous structures remind the parenchymatous structures of kidney, so we can speak about kidney-cellular cancer.



Specimen for examination 13

Cancer of adrenals

It is adrenal in the cut which is considerably enlarged due to growth of tumorous structures of greyish-yellow colour with mucus and destructive changes. Histologically – presence of atypical cells from the medullar layer what is characteristic for malignant pheochromocytoma.



Specimen for examination 14

Central cancer of the lung.

The cut of the lung is presented on the preparation. The growth of grey tumour is seen in the center. It covers the central bronchus pressing it. The features of cellular and tissue atypism in the epithelial tissue without keratosis are revealed during histological examination.



Specimen for examination 15

Myelogenic retracted kidney

The kidney with tuberous surface and areas of hollows and grey protrusions is presented. The organ is of dense consistence. The features of the infiltration by the plasmoblasts and growth of the connective tissue are revealed during histological examination. The outcome of such changes – nephrosclerosis, amyloidosis and renal insufficiency.



Specimen for examination 16

Adenocarcinoma of the rectum

The distal part of the rectum is presented. The polypous growth of mucous membrane with its ulceration which narrows its lumen and can cause intestinal impassability is observed in its lumen. Histologically – the growth of mucous epithelium with the signs of cellular and tissue atypism are revealed in these formations. Thus exophytic growth of malignant tumour takes place in this case.



Specimen for examination 17

Adenoma of the thyroid gland

The thyroid gland enlarged up to 15 cm due to growth of tumour tissue which looks like nodes is presented on the preparation. The features of tissue atypism of the gland are revealed during histological examination of the tumour. It is the follicular adenoma.



Specimen for examination 18

Splenomegaly at leucosis

The spleen enlarged almost at three times is presented on the preparation. The spleen tissue is of sluggish consistence and has cherry-grey colour with grey spots. During histological examination in the parenchyma of the spleen the diffuse leukemic infiltration is revealed. It substitutes the typical structures of the organ.



Specimen for examination 19

Mucous covering of tumour

The cut of tumour formation without clear borders and of dense consistency is presented. There is mucus in the thickness of the tumour what certifies about its secondary changes. Such phenomena are observed in malignant tumours.



Specimen for examination 20

Metastases of stomach cancer in the liver with secondary changes

The cut of liver with numerous nodal formations in parenchyma in diameter of 1 cm is presented. Histologically – atypical glandular structures that correspond to the mucous membrane of stomach are found in nodal formations. In this case hematogenous metastasis of adenocarcinoma of the stomach in the liver takes place.



Specimen for examination 21

Hematogenic metastases of cancer in the lung

The lung with the area of metastatic node in diameter of 1cm of grey color is presented on the preparation. The node is located under pleura that testifies about hematogenic spreading of malignant tumours in a lung.



Specimen for examination 22

Plural cysts of ovaries

An enlarged ovary, in diameter of 6–7 cm with the tuberous surface due to numerous cystic formations is presented. Cysts contain a transparent liquid and have a smooth and shiny surface in the cut. It is so called serous or cilioepithelial cysts. Atrophied epithelium with the signs of tissue atypism was revealed at histological examination.



Specimen for examination 23

Papilloma of the skin

The tumour of the skin with exophytic growth up to 7 cm is presented on the preparation. During the histological examination the features of the atypical multilayered epithelial tissue with keratosis are revealed.



Specimen for examination 24

Papillary cystadenocarcinoma of ovary

On the internal surface of the cyst wall are observed numerous papillomatous growths with ulceration and germination into the layer of the wall. At histological examination the growth of atypical epithelial structures with numerous pathological mitoses and cellular atypism of ovary is revealed. Presence of described macro- and microscopic manifestations is characteristic for papillary cystadenocarcinoma of the ovary.



Specimen for examination 25

Submucous fibromyoma of the uterus

The cut of uterus is presented on the preparation. It has two tumour-like nodes in diameter up to 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 are revealed during histological examination.



Specimen for examination 26

Metastases into omentum

The mesenterium of the small intestine is presented on the preparation. Rosy tumour nodes in diameter of 1 cm are seen in its thickness. During histological examination the substitution of the lymphoid tissue by the atypical glandular structures which look like epithelial tissue of the mucous membrane of the gastrointestinal tract is revealed.



Specimen for examination 27

Metastases of the stomach cancer in omentum

The small intestine in mesentery of which is the growth of tumorous structures of small and large lobed character with hemorrhage in the cut is presented. Histologically – the growth of atypical structures with numerous pathological mitoses is revealed in tumorous omentum formations.



Specimen for examination 28

Lympholeucosis

A part of aorta around which is the growth of enlarged paraaortic lymph nodes in size of 1–3 cm and of dense consistency is presented. Microscopically – the proliferation of leukemic cells which totally substitute parenchyma of lymph nodes is revealed in lymph nodes tissue.



Specimen for examination 29

The Wilm's tumour

The child's kidney in size of 6 x 3 cm is presented. There is a formation of tumour in diameter of 10 cm with the areas of hemorrhage, necroses and mucous degeneration in the superior pole of it. Tissue of the tumour has a pied kind. Histologically – structure of kidney is with the signs of cellular and tissue atypism, numerous mitoses, infiltrational growth. The Wilm's tumour is a tumour which has the embryonic origin and observed at child's age.



Specimen for examination 30

Papillary cancer of the ovary

The uterus and ovary are presented on the preparation. The ovary is enlarged up to 10 cm due to the growth of tumour which looks like a cauliflower. The tumour has exophytic germination. The features of the ovary are revealed during histological examination in the tissue of the tumour.



Specimen for examination 31

Adenoma of the adrenal

The cut of the adrenal with yellow tumour growth up to 2 cm is presented on the preparation. It has areas with hemorrhages, necroses and mucosa. The tumour is separated from the typical tissue by the capsule. The features of the tissue atypism of parenchymal structures are revealed in the tumour during histological examination.



Specimen for examination 32

Melanoma of the skin

The tumor with pigmented brown edges is presented on the preparation. The surface of the tumour is of grey colour with ulcerations. The borders of tumour growth are absent. The features of cellular and tissue atypism of melanine-forming tissue with a small quantity of pigments are revealed in the tumour during histological examination.



Specimen for examination 33

Melanoma of the skin with ulceration

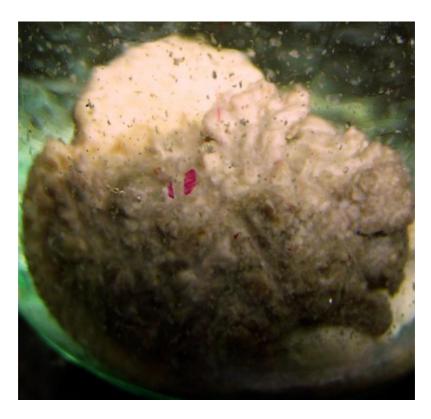
The tumour which has pigmented edges of brown colour is presented. The surface of the tumour is ulceratively changed, of grey colour. The borders of tumour germination are absent. The features of cellular and tissue atypism of the melanin-forming tissue which contains small quantity of pigment are revealed in the tumour during histological examination.



Specimen for examination 34

Metastases of the seminoma into inguinal lymph nodes

The lymph node taken from the inguinal region is presented on the preparation. Its size reaches to 10 cm. One can see the areas of hemorrhages and necroses. During histological examination the tissue of the lymph node is almost absent in the result of the growth of atypical tumour structures which look like malignant tumour of testicles (seminoma).



Specimen for examination 35

Planocellular cancer of the skin with keratosis

The piece of skin with tumour growth which looks like a cauliflower and with the exophytic germination on its surface is presented on the preparation. The features of cellular and tissue atypism with keratosis and infiltrative growth are revealed during histological examination.



Specimen for examination 36

Lymphatic leucaemia

A part of mesenterium of the small intestine is presented on the preparation. The growth of tumour-like nodes from 1 to 6 cm is observed. The areas of hemorrhages are seen. The growth of lymph-like tissue with the features of the growth and cellular atypism are revealed during histological examination.



Specimen for examination 37

Fibrosarcoma

Tumour in diameter up to 15 cm of grey colour which consists of the fibrous structures of the different character without clear borders of growth is presented. The areas of necrosis and destruction of tissue are seen in the thickness of the tumour. Histologically – atypical connective tissue structures which are presented by fibroblasts, fibres with numerous pathological mitoses, cellular atypism and infiltrative growth are revealed.



Specimen for examination 38

The porphyry spleen

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



Specimen for examination 39

Metastases in lungs

The cut of the lung which is filled with the grey nodes of different diameters of 1–2 cm is presented. There are hemorrhages in some areas of the lungs. Histologically there are the signs of gastric adenocarcinoma structure. It is the hematogenous metastases of stomach cancer.



Specimen for examination 40

Lipoma

Tumour consists of adipose tissue in the form of separate nodes which meet in one conglomerate in diameter up to 10 cm. On the surface of one of the nodes we can see the areas of hemorrhage – manifestation of secondary changes in the tumour.



Specimen for examination 41

Papillary adenocarcinoma of the ovary

The ovary is enlarged; the growth of the tissue of tumour origin is seen on the surface. The picture of the tumour looks like a cauliflower. During histological examination the features of the atypical cellular and tissue structures are revealed.



Specimen for examination 42

Sarcoma

It is a tumour of grey colour in diameter of 15 cm which consists of the fibrous structures of different character without clear borders of the growth. The areas of necrosis and destruction of tissue are visible in the thickness of the tumour. Histologically – atypical connective tissue structures which are presented as fibroblasts, fibers with numerous pathological mitoses, cellular atypism and infiltrative growth are revealed.



Specimen for examination 43

Constrictive cancer of the large intestine

A part of the large intestine is presented. Its lumen is narrowed because of the tumour growth. In the cut the tumour has numerous hemorrhages, areas of necroses; the clear borders of its growth are absent. At histological examination the signs of atypical glandular structures with pathological mitoses and atypism are revealed.



Specimen for examination 44

The carcinomatous omentitis

The tissue of the mesenterium of the large intestine with tumour-like formations in diameter from 1 to 3 cm which are of dense consistence and grey-rosy colour is presented. During the histological examination the features of atypical glandular structures growth with the cellular atypism and inflammatory infiltration are revealed.

Навчальне видання

Романюк Анатолій Миколайович, Карпенко Людмила Іванівна, Москаленко Роман Андрійович та ін.

Патологічна анатомія. Атлас макропрепаратів

Навчальний посібник У двох частинах

Частина 1

Загальнопатологічні процеси

(Англійською мовою)

Художнє оформлення обкладинки А. М. Піддубного Редактор О.О. Кучмій Комп'ютерне верстання А. М. Піддубного