

## LECTURES - theses

### LECTURE №1 – 2 hours

#### Introduction. Degenerations.

1. Subject, tasks and methods of pathology.
2. Health, disease and death.
3. Basic knowledge about degenerative and adaptive processes in pathology.
4. Reversible cell injure ( cellular edema, accumulation of proteins and carbohydrates).
5. Intracellular accumulation of lipids / fatty degeneration / in the cell. Types of lipids. Abnormal accumulation of lipids in parenchymal cells. Mechanisms. Accumulation of lipids in the liver, myocardium and kidneys.
6. Intracellular accumulation of lipids in mesenchymal cells / mesenchymal lipidoses/. General obesity. Local obesity / lipomatosis/. Lipidic phagocytosis. Accumulation of cholesterol and cholesterol esters.
7. Accumulation of exogenous pigments. Endogenous pigments. Pigments derived from hemoglobin. Iron-containing hemoglobinogenic pigments. Hemosideroses. Hemochromatosis.
8. Iron-free hemoglobinogenic pigments. Bilirubin. Jaundice. Types.

### LECTURE №2 – 2 hours

#### Cell death. Haemodynamic disorders - 1 part.

1. Apoptosis – definition and general morphological characteristics.
2. Necrosis – definition and general morphological characteristic.
3. Clinico-morphological forms of necrosis.
4. Outcomes from necrosis.
5. Haemodynamic disorders - arterial hyperemia.
6. Venous congestion.
7. Bleeding and haemorrhages.
8. Plasmorrhagia.
9. Ischemia.
10. Infarction. Definition. Anemic and hemorrhagic infarction.

### **LECTURE №3 – 2 hours**

#### **Haemodynamic disorders - part 2.**

1. Rheological disorders.
2. Thrombosis - definition, morphogenesis, formation of thrombi, development and complications.
3. Disseminated intravascular coagulopathy (DIC syndrome).
4. Emboli - definition and classification. Orthograde, paradoxical and retrograde embolism.
5. Embolisms - types: pulmonary thromboembolism, air, gas, fat, amniotic, bacterial, tumor cell.
6. Shock. Species, stages, morphological picture.

### **LECTURE №4 – 2 hours**

#### **Inflammation. Tuberculosis. Lues.**

1. Inflammation. Definition.
2. Etiology.
3. Phases.
4. Pathogenesis of inflammation.
5. Exudative inflammation.
6. Characteristics of diffuse interstitial and granulomatous productive inflammation.
7. Infectious diseases. Tuberculosis.
8. Lues.
9. Influenza.
10. Sepsis.
11. AIDS.

### **LECTURE №5 – 2 hours**

#### **Pathology of immunity. Regeneration. Compensatory and adaptive processes.**

1. Hypersensitivity reactions.
2. Regeneration – definition, types.
3. Atrophy.
4. Hypertrophy – definition. Types.
5. Hyperplasia.

6. Metaplasia – definition. Types.

**LECTURE №6 – 2 hours**

**Tumors.**

1. Definition and essence of tumor growth.
2. Carcinogenesis.
3. Biological manifestations of benign and malignant tumors.
4. Structure and shape of tumors.
5. Terminology.
6. Diagnostic methods.
7. Tumors of epithelial origin.
8. Tumors of mesenchymal origin.

**LECTURE №7 – 2 hours**

**Pathology of the respiratory system.**

1. Bronchitis – definition. Types.
2. Chronic obstructive pulmonary disease.
3. Bronchiectasis.
4. Pulmonary emphysema.
5. Inflammatory diseases of the lung parenchyma: focal, lobar and interstitial pneumonia.
6. Abscess and gangrene of the lung.
7. Lung cancer.

**LECTURE №8 – 2 hours**

**Pathology of the cardiovascular system. Atherosclerosis. Hypertension.**

1. Atherosclerosis - definition, pathogenesis.
2. Atherosclerotic plaques - structure. Stages.
3. Complications of atherosclerosis.
4. Arterial hypertension – definition. Types.
5. Complications of arterial hypertension.

**LECTURE №9 – 2 hours**

### **Ichaemic heart disease. Rheumatism. Lupus.**

1. Ischemic heart disease - definition.
2. Pathogenesis.
3. Types.
4. Complications.
5. Systemic connective tissue diseases: Rheumatism.
6. Systemic connective tissue diseases: Systemic lupus erythematosus.
7. Acquired valvular defects of the heart.

### **LECTURE №10 – 2 hours**

#### **Pathology of the digestive system.**

1. Pathology of the stomach and duodenum.
2. Gastritis - definition. Types.
3. Stomach ulcer. Complications.
4. Duodenal ulcer.
5. Stomach cancer.
6. Enteritis and enterocolitis.
7. Appendicitis.
8. Mesenteric thrombosis.
9. Intestinal obstruction.
10. Hepatitis - types.
11. Liver cirrhosis.
12. Liver cancer.
13. Diseases of the pancreas.
14. Cholelithiasis.

### **LECTURE №11 – 2 hours**

#### **Pathology of the endocrine system.**

1. Diseases of the pituitary gland.
2. Diseases of the adrenal glands.
3. Diseases of the thyroid gland.
4. Nodular colloid goiter.

5. Thyroiditis.
6. Tumors of the thyroid gland.
7. Diseases of the endocrine pancreas.
8. Diabetes – definition.Types. Complications.

### **LECTURE №12 – 2 hours**

#### **Pathology of the excretory system.**

1. Anatomical-physiological data on the excretory system.
2. Glomerulonephritis - definition.
3. Pathogenetic mechanisms.
4. Types of glomerulonephritis.
5. Tubulo-interstitial diseases.
6. Pyelonephritis – definition.Types. Complications.
7. Acute and chronic renal failure.
8. Nephrosclerosis.
9. Nephrolithiasis.
10. Kidney tumors.
11. Urinary bladder pathology.

### **LECTURE №13 – 2 hours**

#### **Pathology of the female reproductive system and the breast.**

1. Inflammatory diseases of the vagina.
2. Neoplastic diseases of the cervix.
3. Diseases of the uterine body.
4. Ovarian tumors.
5. Pathology of pregnancy.
6. Diseases of the breast. Fibro-cystic disease.
7. Breast cancer.

### **LECTURE № 14 – 2 hours**

#### **Damage to the body from medicines.**

1. Drug-induced disease - definition.

2. Mechanisms of occurrence.
3. Drug dependence. Types.
4. Drug-induced disease - definition.
5. Main organ levels of morphological damage.

### **PRACTICAL EXERCISES - Theses**

#### **PRACTICAL EXERCISE №1 - 2 hours**

##### **Subject, tasks and methods of general and clinical pathology.**

1. Biopsy method: indications.
2. Types of biopsies - intraoperative histological consultation (gefrir), incisional, excisional, puncture, operative, punch biopsy) - technology of execution, sending, fixation and histological processing.
3. Cytological examination.
4. Possibilities and limitations of the biopsy method and cytological examination.

#### **PRACTICAL EXERCISE №2 - 2 hours**

##### **1 seminar: Degenerations. Cell death.**

Acute reversible cell injury: cell edema, excessive accumulation of carbohydrates and proteins.

Macroscopic specimens:

Glomerulosclerosis diabetica.

2. Intracellular accumulation of lipids.

Macroscopic specimens:

Fatty degeneration of the liver.

"Tiger" heart.

Lipomatosis of the heart.

Pancreatic lipomatosis.

3. Accumulation of exogenous pigments.

Anthraxis of the lung.

Tattoos.

4. Accumulation of endogenous pigments.

Macroscopic preparations:

Liver in Kuley's anemia.

Cholangiohepatitis - jaundice.

Pancreas - hemosiderosis.

Pancreas, thyroid gland, liver - metastases from melanoma.

5. Cell death: apoptosis and necrosis.

Macroscopic specimens:

Anemic splenic infarction.

Anemic kidney infarction.

Anemic brain infarction.

Cerebral pseudocyst.

Lymph node in tuberculosis.

Gangrene of the lower limb.

Acute necrotizing pancreatitis.

### **EXERCISE № 3 - 2 hours**

#### **II seminar: Disorders of blood circulation. Inflammation. Pathology of immunity.**

1. Haemodynamic disorders: hyperemia, edema, hemorrhages.

Macroscopic specimens:

Nutmeg liver.

Cardiac fibrosis of the liver.

Hemorrhage in the white matter of the brain.

Brown induration of lung.

2. Haemodynamic disorders: ischemia, thrombosis, embolism, infarction.

Macroscopic specimens:

Recent myocardial infarction.

Anemic kidney infarction.

Splenic infarction.

Ischemic infarction of the brain.

Aorta with obturating thrombus.

Round thrombus in the left atrium.

Pulmonary thromboembolism.

Hemorrhagic lung infarction.

Mesenteric thrombosis.

3. Inflammation: Main morphological changes. Mediators of inflammation. Classification.

Forms of exudative inflammation.

Macroscopic specimens:

Fibrinous pericarditis.

"Armored" heart.

Purulent leptomeningitis.

Phlegmonous appendicitis.

4. Productive inflammation.

Macroscopic specimens:

Echinococcus of the spleen.

Echinococcus of the liver.

Trichinellosis of the tongue.

Nasal polyp.

5. Granulomatous inflammation.

Macroscopic specimens:

Fibrocavernous tuberculosis of the lung.

Miliary tuberculosis of the lung.

Tuberculous leptomeningitis.

Lymph node in tuberculosis.

Tuberculosis of the kidney.

Luetic aneurysm of the aorta.

6. Pathology of immunity.

Macroscopic specimens:

Heart with post-infarction cicatrix

Chronic aneurysm and mural thrombus.

Hashimoto's chronic lymphocytic thyroiditis.

Rheumatoid arthritis.

**EXERCISE №4 - 2 hours**

**III seminar: Compensatory-adaptive processes. Tumors.**



1. Compensatory and adaptive processes: atrophy, hypertrophy, hyperplasia, metaplasia.

Macroscopic specimens:

Tongue in acromegaly.

Left ventricular dilatation in chronic myocarditis.

Hypertensive heart.

Prostatic hypertrophy with bladder stones.

Myocardial atrophy.

Internal hydrocephalus.

2. Regenerative processes.

Bone marrow regeneration.

3. Tumors. Benign and malignant tumors from superficial epithelium.

Macroscopic specimens:

Basal cell carcinoma.

Lung carcinoma.

Bladder cancer.

Carcinoma of the breast.

Cervical cancer.

4. Benign and malignant tumors of the glandular epithelium.

Macroscopic specimens:

Fibroadenoma of the breast.

Breast cancer.

Gastric cancer: polypoid, nodular and scirrhous form.

Colon cancer.

Endometrial cancer.

5. Benign and malignant mesenchymal tumors.

Macroscopic specimens:

Lipoma.

Hibernoma.

Cavernous hemangioma of the liver.

Adrenal adenoma.

Leiomyoma of the uterus.

6. Pigment tumors. Teratomas.

Macroscopic specimens:

Malignant melanoma - skin.

Metastases from malignant melanoma in the liver, brain, etc.

Mature teratoma (dermoid cyst) of the ovary.

### **EXERCISE №5 - 2 hours**

#### **IV seminar: Pathology of the cardiovascular and respiratory system.**

1. Pathology of the cardiovascular system: atherosclerosis, hypertensive disease.

Macroscopic specimens:

Arteriosclerotic nephrosclerosis.

Cor hypertonicum.

Arteriolosclerotic nephrosclerosis.

Obstructing thrombus in the abdominal aorta.

Punctate hemorrhages in cerebral white matter.

Hematoma in a large cerebral hemisphere.

Cerebral white matter softening.

Pseudocyst of the brain.

2. Myocardial infarction. Myocardiofibrosis.

Macroscopic specimens:

Recent myocardial infarction.

Left ventricular hypertrophy.

Left ventricular hypertrophy and dilatation.

Aorto-coronary bypass.

3. Endocarditis. Myocarditis. Pericarditis.

Macroscopic specimens:

Fibrinous pericarditis.

4. Systemic diseases of the connective.

Macroscopic specimens:

Rheumatic fibrous endocarditis of the mitral valve.

Stenosis and insufficiency of the mitral valve and round thrombus in the left atrium.

Ulcerous-polypous endocarditis.

Kidney - polyarteritis nodosa.

5. Diseases of the respiratory system. Bronchitis. Emphysema. Pleurisy. Bronchial asthma.

Macroscopic specimens:

Chronic bronchitis.

Pulmonary emphysema.

Pleural shunt.

1. Pneumonias.

Macroscopic specimens:

Abscessing pneumonia.

Croupous pneumonia in the stage of gray hepatization.

7. Pneumoconiosis. Neoplasms.

Macroscopic specimens:

Lung anthracosis.

Pulmonary silicosis.

Lung carcinoma.

### **EXERCISE №6 - 2 hours**

#### **V seminar: Pathology of the digestive and endocrine system (according to the synopsis).**

1. Diseases of the gastrointestinal tract: stomach, duodenum.

Macroscopic specimens:

Hypertrophic gastritis.

2. Stomach and duodenal ulcer. Complications.

Macroscopic specimens:

Acute stomach ulcers.

Chronic gastric ulcer with perforation.

Chronic ulcer of the stomach and duodenum

3. Malignant tumors of the stomach.

Macroscopic specimens:

Stomach cancer - polypous, panicoid, scirrhus.

4. Liver diseases. Acute and chronic hepatitis. Liver cirrhosis.

Macroscopic specimens:

Micronodular cirrhosis of the liver.

5. Diseases of the gall bladder and bile ducts.

Macroscopic specimens:

Cholelithiasis.

Gangrenous cholecystitis.

6. Diseases of the endocrine system: thyroid gland, endocrine pancreas.

Macroscopic specimens:

Nodular colloid goiter.

Base goiter.

Diabetic glomerulosclerosis.

### **EXERCISE № 7 - 2 hours**

#### **VI seminar: Pathology of the excretory and female reproductive system and breast.**

1. Diseases of the excretory system. Glomerulonephritis. Definition, etiology and pathogenesis. Classification.

Macroscopic specimens:

Acute glomerulonephritis.

Subacute glomerulonephritis.

Glomerulonephritic nephrosclerosis.

Lipoid nephrosis.

2. Pyelonephritis.

Macroscopic specimens:

Arterio and arteriolosclerotic nephrosclerosis.

Diabetic glomerulosclerosis.

Amyloid nephrosis and large white kidney

Calculous pyelonephritis with pyonephrosis.

Carcinoma of the kidney.

Wilms tumor.

Polycystic disease of kidneys.

Bilateral hydronephrosis.

3. Pathology of pregnancy.

Macroscopic specimens:

Uterus with fetus.

Abortion.

Ectopic pregnancy.

Mola hydatidosis.

Chorioncarcinoma.

4. Diseases of the female reproductive system. Benign and malignant tumors of the cervix and uterine body.

Macroscopic specimens:

Uterus-polyp.

Uterus with leiomyoma.

Cervical canal polyp.

Endometrial cancer.

Cancer of uterine cervix.

5. Ovarian tumors.

Macroscopic specimens:

Ovarian cystadenoma.

Krukenberg metastases in ovaries.

6. Diseases of the breast.

Macroscopic specimens:

Breast cancer.

Fibroadenoma of the breast.