INTERNATIONAL HIGHER SCHOOL OF MEDICINE

Department of Pathology

SYLLABUS

Systemic pathological anatomy

2026-2027 academic year
for students of medical faculty
3 course 7 semester, groups 1-40
2 credits (60 h, including auditorial 36 h, independent work 24 h)

Lecturer: **Samaeva E.V. (1-40 gr)**
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Venue: Vedanta Pathology Dagestanskaya street 6

The Syllabus is considered
at the meeting of the department of Pathology
Protocol №____ dated_____2026
Head of the department_____

Course objective: The purpose of mastering the academic discipline systemic pathological anatomy is to study the structural basis of various human diseases, their etiology, pathogenesis, morphogenesis, complications and outcomes in order to use this knowledge in the study of clinical disciplines for the training of generalists.

After study of the discipline the student must:

Knowledge:

- Rules for preparing and delivering public speeches and for structuring academic texts.
- Methods for solving professional tasks using high-quality informational, bibliographic resources, and information and communication technologies.
- Pathophysiological mechanisms of symptom and syndrome development in the most common diseases, and the ability to justify pathogenetically appropriate diagnostic methods for patients of various age groups.

Skills:

- Construct logically sound and well-argued academic and publicistic texts and present them in educational settings.
- Solve professional tasks using high-quality informational, bibliographic resources, and information and communication technologies.
- Provide practical recommendations for prescribing pathogenetically justified diagnostic procedures to ensure accurate diagnosis of the most common diseases across various age groups.

Attitude:

- Techniques of conducting discussions on professional and scientific topics, as well as for educational and developmental purposes.
- Skills in using high-quality informational, bibliographic resources, and information and communication technologies in solving professional tasks.
- Skills in analyzing and synthesizing information obtained from pathogenetically justified diagnostic procedures to ensure accurate diagnosis of the most common diseases across various age groups.

Pre-requisites:

- Macro- and microanatomy
- Normal physiology
- Microbiology, virology and immunology
- Medical biology
- Systemic pathological physiology
- Biochemistry
- General pathology

Post-requisites: All clinical disciplines

THEMATIC PLAN THEMATIC PLAN OF LECTURES

№	Unit	Theme of lecture	Hours	Date
3	Pathological anatomy of diseases of the central nervous system, musculoskeletal system. Pathanatomy of infectious diseases	L 1: Morphological features of osteomyelitis, metabolic and endocrine bone diseases. Pathomorphology of arthritis.	2	01.09.2025
		L 2: Pathomorphological characteristics of inflammatory, cerebrovascular, degenerative diseases of the central nervous system.	2	02.09.2025
		L 3: Morphological features of overdangerous infections. Morphological features of childhood infections, ARVI.	2	03.09.2025
4	Pathological anatomy of diseases of the urinary and reproductive systems.	L 4: Morphological features of glomerulopathies. Glomerulonephritis. Nephrotic syndrome. Renal amyloidosis.	2	04.09.2025
		L 5: Morphological features of tubulopathies. Pathomorphology of pyelonephritis. Morphological features of acute renal failure. Chronic renal failure. Nephrosclerosis.	2	05.09.2025
		L 6: Morphological features of inflammatory, precancerous and tumor diseases of the uterus, ovaries and mammary glands.	2	06.09.2025
	Total		**12**	

THEMATIC PLAN OF PRACTICAL CLASSES

№	Unit	Theme of practical class	Hours	Date
3	Pathological anatomy of diseases of the central nervous system, musculoskeletal system. Pathanatomy of infectious diseases	PC 1: Macro- and microscopic changes in bone tissue in osteomyelitis, metabolic and endocrine bone diseases.	2	According to timetable
		PC 2: Macro- and microscopic changes in the structure of joint tissue in arthritis.	2	According to timetable
		PC 3: Morphological features of inflammatory, cerebrovascular, degenerative diseases of the central nervous system.	2	According to timetable
		PC 4: Morphological features of cerebrovascular and degenerative diseases of the central nervous system.	2	According to timetable
		PC 5: Morphological features of overdangerous infections. Morphological features of childhood infections, ARVI.	2	According to timetable
		PC 6: **Unit control-3**	2	According to timetable
4	Pathological anatomy of diseases of the urinary and reproductive systems.	PC 7: Macro- and microscopic changes in kidney tissue in glomerulopathies. Glomerulonephritis, nephrotic syndrome, renal amyloidosis. Pathomorphogenesis of acute renal failure.	2	According to timetable
		PC 8: Macro- and microscopic changes in kidney tissues in tubulopathies. Morphological features of pyelonephritis, nephrosclerosis. Pathomorphogenesis of chronic renal failure.	2	According to timetable
		PC 9: Morphological features of inflammatory, precancerous and tumor diseases of the uterus.	2	According to timetable
		PC 10 Morphological features of inflammatory, precancerous and tumor diseases of the ovaries and mammary glands.	2	According to timetable
		PC 11: Placental pathology	2	According to timetable
		PC 12: **Unit control-4**	2	According to timetable
	Total		**24**	

THEMATIC PLAN OF INDEPENDENT WORK OF STUDENTS

№	unit	Theme of independent work	Hours	Date
3	Pathological anatomy of diseases of the central nervous system, musculoskeletal system	Albums with micro-macro preparations. Working with literature	12	According to timetable
4	Pathological anatomy of diseases of the urinary and reproductive systems. Pathanatomy of infectious diseases	Albums with micro-macro preparations. Working with literature	12	According to timetable
	TOTAL		**24**	

Recommended reading for students:

Basic literature

№	Authors	Title	The year of publishing
1	Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran.	Pathologic Basis of Disease.	2021.
2	Mohan H.	Textbook of Pathology.	2019
3	Kumar V., Abbas A.K., Aster J.A., Deyrup A.T.	Robbins Essential Pathology.	2021
4	Klatt E.C. Robbins and Cotran	Atlas of Pathology	2015

Additional literature

№	Authors	Title	The year of publishing
1	Geraldine O'Dowd, Sarah Bell, Sylvia Wright	Wheater's Pathology. A text, atlas and review of histopathology.	2020
2.	Kumar V., Abbas A.K., Aster J.A.	Robbins Basic Pathology	2018.
3.	Buja L.M., Krueger G.R.F.	Netter's Illustrated Human Pathology.	2014
4.	Mohan H.	Pathology. Practical Book.	2013

Grading policy and procedures for all types of work

For the period of studying the discipline, the student gains points for the relevant parameters (per unit):
current score - 40 points
independent work - 20 points
control score (final assessment of knowledge per unit) - 40 points
Maximum score - 100 (40+20+40)

Grading system for student's achievements

Grading criteria per discipline				
Maximum score	Intervals			
	«unsatisfactory»	«satisfactory»	«good»	«excellent»
Current control – 40	0-23	24-30	31-35	36-40
Interval description	Does not know most of the relevant section of the material being studied, presents the material erratically and uncertainly	Presents the material incompletely and allows for inaccuracies in defining concepts	Gives an answer that meets the same requirements as for an "excellent" rating, but makes 2-3 errors	Completely presents the studied material, gives correct definitions of concepts;
Independent work – 20	0-11	12-15	16-17	18-20
Interval description	The topic is not covered, does not correspond to the plan, indicates superficial knowledge	The material is presented quite logically, but there are some irregularities in the sequence of expression of thoughts;	2-3 inaccuracies in the content, minor deviations from the topic are allowed	Excellent knowledge of the topic, targeted analysis of the material, correct conclusions and generalizations;
Control work (module) – 40	0-23	24-30	31-35	36-40

Interval description	Number of correct answers < 60%	Number of correct answers 60-75%	Number of correct answers 76-89%	Number of correct answers 90-100%
TOTAL – 100	0-59	60-75	76-89	90-100

Conduct Policy: (lateness, absence, behavior in the auditorium, late submission of work).
- Punctuality and completion of tasks.
- Mandatory attendance of classes.
- Attending class in a clean medical uniform.
- Eliminating conversations on a cell phone in the classroom.
- Active participation in the learning process.
- Doing homework on time.
- Academic detention at the time specified by the teacher.

For violations of the Conduct Policy, the total points for discipline might be reduced to 1-10 points.

Academic Ethics Policy.
- Be tolerant, respect the opinions of others.
- Formulate objections in the correct form.
- Constructively support feedback in all classes.
- Plagiarism and other forms of dishonest work are unacceptable. Plagiarism includes the following: the absence of references when using printed and electronic materials, quotes, thoughts and works of other authors or students.
- Prompting and cheating during tests, exams, classes is unacceptable as well as passing an exam for another student, unauthorized copying of materials.

For violations of the Academic Ethics Policy, the total points for the discipline may be reduced to 1-10 points.

Guidelines for the practical classes of the discipline
PROGRAM CONTENT OF UNIT № 3
Topic 1. Key questions covered in Lecture №1 "Morphological features of osteomyelitis, metabolic and endocrine bone diseases. Pathomorphology of arthritis."
1. Definition of osteomyelitis. Causes. Pathogenesis. Morphology. Complications
2. Definition of osteoporosis. Causes. Pathogenesis. Morphology. Complications
3. Definition of osteomalacia. Causes. Pathogenesis. Morphology. Complications
4. Definition of rickets. Causes. Pathogenesis. Morphology. Complications
5. Bone pathology with hyperparathyroidism. Causes. Pathogenesis. Morphology. Complications
6. Definition of osteoarthritis. Causes. Pathogenesis. Morphology. Complications
7. Definition of rheumatoid arthritis. Causes. Pathogenesis. Morphology. Complications
8. Definition of purulent arthritis. Causes. Pathogenesis. Morphology. Complications
9. Definition of tuberculous arthritis. Causes. Pathogenesis. Morphology. Complications
10. Definition of gouty arthritis. Causes. Pathogenesis. Morphology. Complications
11. Definition of psoriatic arthritis. Causes. Pathogenesis. Morphology. Complications

Recommended reading for this class:
1.Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran Pathologic Basis of Disease. 2021.
2.Kumar V., Abbas A.K., Aster J.A., Deyrup A.T. Robbins Essential Pathology. 2021.
3.Mohan H. Textbook of Pathology. 2019.
4.Klatt E.C. Robbins and Cotran Atlas of Pathology. 2015.

Topic 2. Key questions covered in Lecture №2 "Pathomorphological characteristics of inflammatory, cerebrovascular, degenerative diseases of the central nervous system"

1.Definition of hydrocephalus. Causes. Pathogenesis. Morphology. Complications.
2.Definition of cerebral edema. Causes. Pathogenesis. Morphology. Complications
3. Definition of herniation of brain. Causes. Pathogenesis. Morphology. Complications
4.Definition of meningitis. Causes. Pathogenesis. Morphology. Complications
5. Definition of encephalitis. Causes. Pathogenesis. Morphology. Complications
6. Cerebrovascular diseases. Causes. Pathogenesis. Morphology. Complications
7. Degenerative diseases. Causes. Pathogenesis. Morphology. Complications

Recommended reading for this class:
1.Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran Pathologic Basis of Disease. 2021.

2.Kumar V., Abbas A.K., Aster J.A., Deyrup A.T. Robbins Essential Pathology. 2021.
3.Mohan H. Textbook of Pathology. 2019.
4.Klatt E.C. Robbins and Cotran Atlas of Pathology. 2015.

Topic №3. Key questions covered in Practical class №1 "Macro- and microscopic changes in bone tissue in osteomyelitis, metabolic and endocrine bone diseases."
1. Definition of osteomyelitis. Causes. Pathogenesis. Morphology. Complications
2. Definition of osteoporosis. Causes. Pathogenesis. Morphology. Complications
3. Definition of osteomalacia. Causes. Pathogenesis. Morphology. Complications
4. Definition of rickets. Causes. Pathogenesis. Morphology. Complications
5. Bone pathology with hyperparathyroidism. Causes. Pathogenesis. Morphology. Complications
6. Healing of fractures

Recommended reading for this class:
1.Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran Pathologic Basis of Disease. 2021.
2.Kumar V., Abbas A.K., Aster J.A., Deyrup A.T. Robbins Essential Pathology. 2021.
3.Mohan H. Textbook of Pathology. 2019.
4.Klatt E.C. Robbins and Cotran Atlas of Pathology. 2015.

Topic №4. Key questions covered in Practical class №2 « Macro- and microscopic changes in the structure of joint tissue in arthritis. »
1. Definition of osteoarthritis. Causes. Pathogenesis. Morphology. Complications
2. Definition of rheumatoid arthritis. Causes. Pathogenesis. Morphology. Complications
3. Definition of purulent arthritis. Causes. Pathogenesis. Morphology. Complications
4. Definition of tuberculous arthritis. Causes. Pathogenesis. Morphology. Complications
5. Definition of gouty arthritis. Causes. Pathogenesis. Morphology. Complications
6. Definition of psoriatic arthritis. Causes. Pathogenesis. Morphology. Complications
7. Systemic connective tissue diseases.

Recommended reading for this class:
1.Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran Pathologic Basis of Disease. 2021.
2.Kumar V., Abbas A.K., Aster J.A., Deyrup A.T. Robbins Essential Pathology. 2021.
3.Mohan H. Textbook of Pathology. 2019.
4.Klatt E.C. Robbins and Cotran Atlas of Pathology. 2015.

Topic №5. Key questions covered in Lecture №3 « Morphological features of overdangerous infections. Morphological features of childhood infections, ARVI»
1. Classification of overdangerous infections.
2.General signs of overdangerous infections.
3. Definition of cholera. Causes. Pathogenesis. Morphology. Complications.
4. Definition of plaque. Causes. Pathogenesis. Morphology. Complications
5. Definition of anthrax. Causes. Pathogenesis. Morphology. Complications
6.Definition of smallpox. Causes. Pathogenesis. Morphology. Complications
7.Definition of whooping cough. Causes. Pathogenesis. Morphology. Complications
8.Definition of diphtheria. Causes. Pathogenesis. Morphology. Complications
9.Definition of measles. Causes. Pathogenesis. Morphology. Complications
10.Definition of scarlet fever. Causes. Pathogenesis. Morphology. Complications
11.Definition of meningococcal infection. Causes. Pathogenesis. Morphology. Complications
12.Definition of poliomyelitis. Causes. Pathogenesis. Morphology. Complications

Recommended reading for this class:
1.Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran Pathologic Basis of Disease. 2021.
2.Kumar V., Abbas A.K., Aster J.A., Deyrup A.T. Robbins Essential Pathology. 2021.
3.Mohan H. Textbook of Pathology. 2019.
4.Klatt E.C. Robbins and Cotran Atlas of Pathology. 2015

Topic №6. Key questions covered in Practical class № 3 «Morphological features of inflammatory, cerebrovascular, degenerative diseases of the central nervous system»
1.Definition of hydrocephalus. Causes. Pathogenesis. Morphology. Complications.
2.Definition of cerebral edema. Causes. Pathogenesis. Morphology. Complications
3. Definition of hernia. Causes. Pathogenesis. Morphology. Complications

4.Definition of meningitis. Causes. Pathogenesis. Morphology. Complications
5. Definition of encephalitis. Causes. Pathogenesis. Morphology. Complications

Recommended reading for this class:
1.Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran Pathologic Basis of Disease. 2021.
2.Kumar V., Abbas A.K., Aster J.A., Deyrup A.T. Robbins Essential Pathology. 2021.
3.Mohan H. Textbook of Pathology. 2019.
4.Klatt E.C. Robbins and Cotran Atlas of Pathology. 2015.

Topic №7. Key questions covered in Practical class № 4 «Morphological features of cerebrovascular and degenerative diseases of the central nervous system»
6. Cerebrovascular diseases of CNS. Causes. Pathogenesis. Morphology. Complications
7. Degenerative diseases of CNS. Causes. Pathogenesis. Morphology. Complications

Recommended reading for this class:
1.Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran Pathologic Basis of Disease. 2021.
2.Kumar V., Abbas A.K., Aster J.A., Deyrup A.T. Robbins Essential Pathology. 2021.
3.Mohan H. Textbook of Pathology. 2019.
4.Klatt E.C. Robbins and Cotran Atlas of Pathology. 2015.

Topic №8. Key questions covered in Practical class № 5 « Morphological features of overdangerous infections. Morphological features of childhood infections, ARVI. »
1. Classification of overdangerous infections.
2.General signs of overdangerous infections.
3. Definition of cholera. Causes. Pathogenesis. Morphology. Complications.
4. Definition of plaque. Causes. Pathogenesis. Morphology. Complications
5. Definition of anthrax. Causes. Pathogenesis. Morphology. Complications
6.Definition of smallpox. Causes. Pathogenesis. Morphology. Complications
7.Definition of whooping cough. Causes. Pathogenesis. Morphology. Complications
8.Definition of diphtheria. Causes. Pathogenesis. Morphology. Complications
9.Definition of measles. Causes. Pathogenesis. Morphology. Complications
10.Definition of scarlet fever. Causes. Pathogenesis. Morphology. Complications
11.Definition of meningococcal infection. Causes. Pathogenesis. Morphology. Complications
12.Definition of poliomyelitis. Causes. Pathogenesis. Morphology. Complications

Recommended reading for this class:
1.Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran Pathologic Basis of Disease. 2021.
2.Kumar V., Abbas A.K., Aster J.A., Deyrup A.T. Robbins Essential Pathology. 2021.
3.Mohan H. Textbook of Pathology. 2019.
4.Klatt E.C. Robbins and Cotran Atlas of Pathology. 2015

Topic №9. Key questions covered in Practical class №6 «Unit control-3»

Recommended reading for this class:
1.Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran Pathologic Basis of Disease. 2021.
2.Kumar V., Abbas A.K., Aster J.A., Deyrup A.T. Robbins Essential Pathology. 2021.
3.Mohan H. Textbook of Pathology. 2019.
4.Klatt E.C. Robbins and Cotran Atlas of Pathology. 2015.

List of questions for MCQ part of the final unit examination:
1. A section of bone shows prominent osteoid seams, very large osteoclasts with more than 12 hyperchromatic nuclei, and viral-type inclusion particles. This is most characteristic of
   A. Paget's disease
   B. Gaucher's disease
   C. Fibrous dysplasia
   D. Giant cell tumors of bone
   E. Brown tumor of bone
2. The part of a long bone initially involved in hematogenous osteomyelitis is the
   A. Metaphyseal region
   B. Diaphysis
   C. Epiphysis

D. Area around the entrance of the nutrient artery
E. Medullary cavity

3. Which one of the listed abnormalities is most likely to produce a spinal cord lesion that destroys both bone and the disk space (cartilage)?
A. Metastatic carcinoma
B. Multiple myeloma
C. Non-Hodgkin's lymphoma
D. Syringomyelia
E. Tuberculosis

4. A 65-year-old female presents with pain, stiffness, and swelling of her knees. Physical examination of her knees reveals marked crepitus. Reconstructive surgery is performed on her knees. The resected bone reveals destruction of the articular cartilage and eburnation of the underlying exposed bone. Which one of the following best describes the etiology of this woman's disease?
A. "Wear and tear" destruction of articular cartilage
B. Anti-IgG autoantibodies
C. Deficient enzyme in the metabolic pathway involving tyrosine
D. Deposition of needle-shaped negatively birefringent crystals
E. Deposition of short, stubby, rhomboid-shaped positively birefringent crystals

5. Which of the following is the most common causative agent of osteomyelitis in adults?
A. Streptococcus pneumoniae
B. Staphylococcus aureus
C. Escherichia coli
D. Mycobacterium tuberculosis
E. Pseudomonas aeruginosa

6. What is a sequestrum in osteomyelitis?
A. A mass of necrotic bone surrounded by healthy tissue
B. A collection of pus within the bone
C. An area of new bone formation
D. A type of bone tumor
E. A large blood clot in the bone

7. In rheumatoid arthritis, what is the primary pathological change observed in the joints?
A. Erosion of cartilage
B. Synovial inflammation and hyperplasia
C. Bony sclerosis
D. Bone fracture
E. Joint capsule fibrosis

8. Which of the following is the most characteristic feature of osteoarthritis on histopathology?
A. Hyperplastic synovium
B. Cartilage degeneration and subchondral bone sclerosis
C. Pannus formation
D. Erosion of articular cartilage
E. Periarticular soft tissue swelling

9. What is the primary cause of joint destruction in rheumatoid arthritis?
A. Immune-mediated inflammation leading to pannus formation
B. Mechanical wear and tear on cartilage
C. Infection of the synovial fluid
D. Deposition of urate crystals
E. Vitamin D deficiency

10. Which of the following is most commonly affected by psoriatic arthritis?
A. Distal interphalangeal joints
B. Elbows
C. Hips
D. Temporomandibular joints
E. Sternoclavicular joints

11. Most common cause of viral encephalitis?
A. Herpes zoster
B. Herpes simplex
C. Varicella zoster
D. Japanese encephalitis
E. HIV

12. Most common site of hypertensive intraparenchymal hemorrhage in India is:
A. Pons

B. Thalamus
C. Putamen
D. Cerebellum
E. Hemispheres

13. Negri bodies are characteristic of:
A. Tetanus
B. Rabies
C. Polio
D. AIDS
E. TB

14. Pathology of Alzeheimer's disease is:
A. Accumulation of beta-amyloid plaques
B. Loss of dopaminergic neurons in the substantia nigra
C. Formation of Lewy bodies in the cerebral cortex
D. Degeneration of the basal ganglia
E. Enlargement of the ventricles due to neuronal loss

15. Which of the following is the primary pathological feature of Parkinson's disease?
A. Accumulation of beta-amyloid plaques
B. Loss of dopaminergic neurons in the substantia nigra
C. Formation of Lewy bodies in the cerebral cortex
D. Degeneration of the basal ganglia
E. Enlargement of the ventricles due to neuronal loss

16. What is a characteristic pathological feature of viral encephalitis?
A. Neutrophilic infiltration with abscess formation
B. Perivascular lymphocytic infiltration and neuron damage
C. Edema and hemorrhage in the meninges
D. Granulomatous inflammation in the brain parenchyma
E. Presence of thick fibrinous exudate

17. Which of the following is a major histopathological feature of chronic meningitis due to tuberculosis?
A. Formation of granulomas with caseous necrosis
B. Presence of viral inclusions in neurons
C. Abscess formation with central necrosis
D. Marked neutrophilic infiltration
E. Widespread demyelination in the white matter

18. Which of the following is the primary pathological feature of an ischemic stroke?
A. Rupture of a blood vessel leading to hemorrhage
B. Necrosis of neurons due to a lack of blood supply
C. Formation of an aneurysm in the brain
D. Infiltration of the brain by inflammatory cells
E. Degeneration of the basal ganglia

19. Which of the following is a characteristic pathological feature of hemorrhagic stroke?
A. Necrotic tissue surrounded by an inflammatory response
B. Thickening of the arterial walls due to plaque formation
C. Bleeding into the subarachnoid space or brain parenchyma
D. Embolism from the heart leading to infarction
E. Formation of a fibrous scar in the affected brain area

20. In hemorrhagic stroke, which of the following is most commonly seen in the brain tissue after the hemorrhage?
A. Neuronal apoptosis
B. Formation of a cystic cavity
C. Inflammatory infiltration with macrophages and neutrophils
D. Lipid accumulation in the white matter
E. Extensive demyelination in the affected region

PROGRAM CONTENT OF UNIT № 4

Topic №10. Key questions covered in Lecture №4 « Morphological features of glomerulopathies. Glomerulonephritis. Nephrotic syndrome. Renal amyloidosis»

1. Glomerulonephritis. Classification. Causes. Pathogenesis. Morphology.
2. Acute glomerulonephritis. Causes. Pathogenesis. Morphology. Complications
3. Rapidly progressive glomerulonephritis. Causes. Pathogenesis. Morphology. Complications
4. Chronic glomerulonephritis. Causes. Pathogenesis. Morphology. Complications
5. Nephrotic syndrome. Lipoid nephrosis. Causes. Pathogenesis. Morphology. Complications

6. Membranous nephropathy. Causes. Pathogenesis. Morphology. Complications
7. Focal segmental glomerulosclerosis. Causes. Pathogenesis. Morphology. Complications

Recommended reading for this class:
1.Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran Pathologic Basis of Disease. 2021.
2.Kumar V., Abbas A.K., Aster J.A., Deyrup A.T. Robbins Essential Pathology. 2021.
3.Mohan H. Textbook of Pathology. 2019.
4.Klatt E.C. Robbins and Cotran Atlas of Pathology. 2015.

Topic №11. Key questions covered in Lecture №5 « Morphological features of tubulopathies. Pathomorphology of pyelonephritis. Morphological features of acute renal failure. Chronic renal failure. Nephrosclerosis»
1. Definition of pyelonephritis. Causes. Pathogenesis. Morphology. Complications
2. Definition of nephrolithiasis. Causes. Pathogenesis. Morphology. Complications
3. Definition of hydronephrosis. Causes. Pathogenesis. Morphology. Complications
4. Renal failure. Classification. Causes. Pathogenesis. Morphology
5. Acute renal failure. Causes. Pathogenesis. Morphology. Complications
6. Chronic renal failure. Causes. Pathogenesis. Morphology. Complications
7. Definition of nephrosclerosis. Causes. Pathogenesis. Morphology. Complications

Recommended reading for this class:
1.Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran Pathologic Basis of Disease. 2021.
2.Kumar V., Abbas A.K., Aster J.A., Deyrup A.T. Robbins Essential Pathology. 2021.
3.Mohan H. Textbook of Pathology. 2019.
4.Klatt E.C. Robbins and Cotran Atlas of Pathology. 2015.

Topic №12. Key questions covered in Lecture №6 « Morphological features of inflammatory, precancerous and tumor diseases of the uterus, ovaries and mammary glands»
1. Precancerous changes of the cervix. Morphological features.
2. Benign and malignant tumors of the cervix. Morphological features
3. Precancerous changes of the body of uterus. Morphological features
4. Benign and malignant tumors of the endometrium. Morphological features
5. Precancerous diseases of the ovaries. Morphological features
6. Benign and malignant tumors of the ovaries. Morphological features
7. Precancerous diseases of breast. Morphological features
8. Benign and malignant tumors of the breast. Morphological features
9.Placental insufficiency. Causes. Pathogenesis. Morphology. Complications
10.Congenital malformations and hemodynamic disorders of placenta. Morphological features
11.Inflammation and tumors of placenta. Morphological features

Recommended reading for this class:
1.Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran Pathologic Basis of Disease. 2021.
2.Kumar V., Abbas A.K., Aster J.A., Deyrup A.T. Robbins Essential Pathology. 2021.
3.Mohan H. Textbook of Pathology. 2019.
4.Klatt E.C. Robbins and Cotran Atlas of Pathology. 2015.

Topic №13. Key questions covered in Practical class №7 « Macro- and microscopic changes in kidney tissue in glomerulopathies. Glomerulonephritis, nephrotic syndrome, renal amyloidosis. Pathomorphogenesis of acute renal failure»
1. Glomerulonephritis. Classification. Causes. Pathogenesis. Morphology.
2. Acute glomerulonephritis. Causes. Pathogenesis. Morphology. Complications
3. Rapidly progressive glomerulonephritis. Causes. Pathogenesis. Morphology. Complications
4. Chronic glomerulonephritis. Causes. Pathogenesis. Morphology. Complications
5. Nephrotic syndrome. Lipoid nephrosis. Causes. Pathogenesis. Morphology. Complications
6. Membranous nephropathy. Causes. Pathogenesis. Morphology. Complications
7. Focal segmental glomerulosclerosis. Causes. Pathogenesis. Morphology. Complications
8. Renal failure. Classification. Causes. Pathogenesis. Morphology
9. Acute renal failure. Causes. Pathogenesis. Morphology. Complications

Recommended reading for this class:

1.Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran Pathologic Basis of Disease. 2021.
2.Kumar V., Abbas A.K., Aster J.A., Deyrup A.T. Robbins Essential Pathology. 2021.
3.Mohan H. Textbook of Pathology. 2019.
4.Klatt E.C. Robbins and Cotran Atlas of Pathology. 2015.

Topic №14. Key questions covered in Practical class №8 « Macro- and microscopic changes in kidney tissues in tubulopathies. Morphological features of pyelonephritis, nephrosclerosis. Pathomorphogenesis of chronic renal failure»

1. Definition of pyelonephritis. Causes. Pathogenesis. Morphology. Complications
2. Definition of nephrolithiasis. Causes. Pathogenesis. Morphology. Complications
3. Definition of hydronephrosis. Causes. Pathogenesis. Morphology. Complications
4. Definition of nephrosclerosis. Causes. Pathogenesis. Morphology. Complications
5. Chronic renal failure. Causes. Pathogenesis. Morphology. Complications

Recommended reading for this class:

1.Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran Pathologic Basis of Disease. 2021.
2.Kumar V., Abbas A.K., Aster J.A., Deyrup A.T. Robbins Essential Pathology. 2021.
3.Mohan H. Textbook of Pathology. 2019.
4.Klatt E.C. Robbins and Cotran Atlas of Pathology. 2015.

Topic №15. Key questions covered in Practical class №9 «Morphological features of inflammatory, precancerous and tumor diseases of the uterus»

1. Precancerous changes of the cervix. Morphological features.
2. Benign and malignant tumors of the cervix. Morphological features
3. Precancerous changes of the body of uterus. Morphological features
4. Benign and malignant tumors of the endometrium. Morphological features

Recommended reading for this class:

1.Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran Pathologic Basis of Disease. 2021.
2.Kumar V., Abbas A.K., Aster J.A., Deyrup A.T. Robbins Essential Pathology. 2021.
3.Mohan H. Textbook of Pathology. 2019.
4.Klatt E.C. Robbins and Cotran Atlas of Pathology. 2015.

Topic №16. Key questions covered in Practical class №10 «Morphological features of inflammatory, precancerous and tumor diseases of the ovaries and mammary glands»

1. Precancerous diseases of the ovaries. Morphological features
2. Benign and malignant tumors of the ovaries. Morphological features
3. Precancerous diseases of breast. Morphological features
4. Benign and malignant tumors of the breast. Morphological features.

Recommended reading for this class:

1.Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran Pathologic Basis of Disease. 2021.
2.Kumar V., Abbas A.K., Aster J.A., Deyrup A.T. Robbins Essential Pathology. 2021.
3.Mohan H. Textbook of Pathology. 2019.
4.Klatt E.C. Robbins and Cotran Atlas of Pathology. 2015.

Topic №17. Key questions covered in Practical class №11 «Placental pathology»

1. Syndrome of functional insufficiency of the placenta. Causes. Morphological features. Outcomes
2. Congenital malformations of the placenta. Causes. Morphological features. Outcomes
3. Hemodynamic disorders of the placenta. Causes. Morphological features. Outcomes
4. Inflammation of the placenta. Causes. Morphological features. Outcomes

Recommended reading for this class:

1.Kumar V., Abbas A.K., Aster J.A. Robbins and Cotran Pathologic Basis of Disease. 2021.
2.Kumar V., Abbas A.K., Aster J.A., Deyrup A.T. Robbins Essential Pathology. 2021.
3.Mohan H. Textbook of Pathology. 2019.
4.Klatt E.C. Robbins and Cotran Atlas of Pathology. 2015.

Topic №18. Key questions covered in Practical class №12 « Unit control-4»

List of questions for MCQ part of the final unit examination:

1. Which of the following is a characteristic pathological feature of cholera infection?
    A. Formation of granulomas in the liver
    B. Severe dehydration and electrolyte imbalance
    C. Infiltration of macrophages in the lungs
    D. Necrosis of the skin with black eschars
    E. Formation of characteristic buboes in lymph nodes
2. In plague, which of the following is the most common histopathological finding?
    A. Formation of pustules with central necrosis
    B. Extensive hemorrhage and necrosis in the lungs
    C. Caseous necrosis in the liver and spleen
    D. Inflammatory infiltration in the lymph nodes (buboes)
    E. Widespread granulomatous inflammation in the brain
3. What is the characteristic pathological feature of anthrax in the lungs?
    A. Massive hemorrhage and necrosis with edema
    B. Formation of necrotic ulcers with surrounding erythema
    C. Multinucleated giant cells with granulomas
    D. Hemorrhagic mediastinitis and pleural effusion
    E. Thickening of the blood vessel walls with fibrosis
4. Which of the following is a key morphological feature of smallpox lesions in the skin?
    A. Pustules with clear fluid in the early stages
    B. Hemorrhagic lesions with tissue necrosis
    C. Vesicles that later become crusted scabs
    D. Formation of a necrotic ulcer with black edges
    E. Formation of ulcers with a characteristic "punched-out" appearance
5. What is a distinctive histopathological finding in anthrax caused by Bacillus anthracis?
    A. Presence of large, rod-shaped bacilli within macrophages
    B. Granulomas with caseous necrosis in the lungs
    C. Formation of large cysts in the liver and spleen
    D. Diffuse edema with abscess formation in the lymph nodes
    E. Extensive fibrosis and scarring in the affected tissues
6. In diphtheria, which of the following is a characteristic pathological feature?
    A. Formation of thick, grayish pseudomembrane in the throat
    B. Formation of small vesicles on the skin
    C. Hemorrhagic lung consolidation
    D. Widespread lymphocytic infiltration in the lungs
    E. Necrotic ulcers with surrounding erythema
7. What is the primary morphological feature of whooping cough (pertussis) in the respiratory system?
    A. Extensive lung hemorrhage with necrosis
    B. Mucosal inflammation and thickening of the bronchial epithelium
    C. Large, vesicular lesions in the lung parenchyma
    D. Chronic fibrosis and granuloma formation in the lungs
    E. Formation of granulomas with central caseous necrosis in the lungs
8. In measles, what is the characteristic feature seen in the skin during infection?
    A. Large pustules with central necrosis
    B. Fine maculopapular rash starting from the face and spreading
    C. Vesicles filled with clear fluid on the palms
    D. Extensive scaling of the skin with crust formation
    E. Necrotic ulcers on the mucosal surfaces
9. In poliomyelitis, which of the following is the main pathological feature observed in the central nervous system?
    A. Necrosis and hemorrhage in the basal ganglia
    B. Inflammatory infiltration and degeneration of motor neurons in the anterior horn of the spinal cord
    C. Formation of granulomas in the brain parenchyma
    D. Widespread demyelination in the cerebellum
    E. Gliosis and calcification of the meninges
10. Which of the following is the typical pathological finding in the lungs of a person with influenza?
    A. Formation of characteristic gray pseudomembranes
    B. Edema and lymphocytic infiltration in the alveolar spaces
    C. Neutrophilic abscesses in the lung parenchyma
    D. Hemorrhagic consolidation and necrosis of the lung tissue
    E. Chronic fibrosis and granuloma formation in the lung interstitium
11. In nephrotic syndrome, which of the following is the primary pathological feature observed in the glomeruli?

A. Thickening of the glomerular basement membrane
B. Proliferation of mesangial cells
C. Effacement of podocyte foot processes
D. Deposition of amyloid fibrils in the mesangium
E. Immune complex deposition in the glomerular capillaries

12. What is the primary cause of proteinuria in nephrotic syndrome?
    A. Increased glomerular permeability due to glomerular basement membrane thickening
    B. Glomerular immune complex deposition causing inflammation
    C. Increased tubular secretion of proteins due to tubular injury
    D. Podocyte injury leading to loss of selective filtration
    E. Mesangial cell proliferation reducing glomerular filtration rate
13. In rapidly progressive glomerulonephritis (RPGN), which of the following is typically seen on kidney biopsy?
    A. Linear deposition of immunoglobulin G along the basement membrane
    B. Mesangial proliferation and amyloid deposits
    C. Formation of crescents within the glomeruli
    D. Thickening of the glomerular capillary wall
    E. Hyalinosis of the glomerular arterioles
14. Which of the following is a characteristic feature of membranous nephropathy, a type of glomerulonephritis?
    A. Subepithelial immune complex deposits and thickening of the glomerular basement membrane
    B. Crescent formation in the glomeruli
    C. Mesangial cell proliferation and matrix expansion
    D. Fibrinoid necrosis of the glomerular capillaries
    E. Linear deposits of immunoglobulins along the glomerular basement membrane
15. Which of the following is commonly associated with chronic glomerulonephritis?
    A. Diffuse mesangial proliferation and capillary loop collapse
    B. Crescent formation and rapid progression to kidney failure
    C. Extensive hyaline arteriolosclerosis and interstitial fibrosis
    D. Deposition of amyloid fibrils in the glomeruli
    E. Widespread interstitial inflammation with tubular necrosis
16. Which type of ovarian tumor is most commonly benign?
    A. Serous cystadenoma
    B. Granulosa cell tumor
    C. Clear cell carcinoma
    D. Endometrioid carcinoma
    E. Leiomyosarcoma
17. In the context of breast pathology, which of the following is a recognized pre-malignant condition?
    A. Fibroadenoma
    B. Intraductal papilloma
    C. Atypical ductal hyperplasia (ADH)
    D. Lobular carcinoma
    E. Phyllodes tumor
18. What is the most common histological type of malignant breast tumor?
    A. Medullary carcinoma
    B. Lobular carcinoma
    C. Invasive ductal carcinoma
    D. Mucinous carcinoma
    E. Tubular carcinoma
19. Which of the following is a characteristic feature of placenta previa?
    A. Abnormal attachment of the placenta to the myometrium
    B. Placenta covering the internal cervical os
    C. Premature separation of the placenta from the uterine wall
    D. Excessive growth of trophoblastic tissue into the myometrium
    E. Formation of blood-filled cysts in the placenta
20. In preeclampsia, what histopathological change is commonly observed in the placenta?
    A. Proliferation of syncytiotrophoblasts
    B. Villous edema with fibrinoid necrosis
    C. Formation of chorangiomas
    D. Lymphocytic infiltration in the decidua
    E. Excessive invasion of the myometrium

Methodological instructions for the implementation of independent work on the discipline

On A4 list you must fill out a table with the differential diagnosis of various pathological processes
Also on A4 lists you should draw the macroscopic and microscopic morphology of organs and tissues in pathological processes

Unit 3.

Central nervous system

1. On A4 lists you should draw the macroscopic and microscopic morphology of organs and tissues in pathological processes (you can take information and illustrative material from the book «Pathology» by Harsh Mohan (seventh edition 2015):
   - Normal circulation of CSF (Figure 28.2, p-866)
   - Acute suppurative meningitis (Figure 28.3, p-867)
   - Tuberculous encephalitis of the brain (Figure 28.5, p-869)
2. Fill in the table (p-876-877):
3.

Options	Alzheimer's diseases	Parkinsonism	Huntington's disease	Motor neuron disease (Amyotrophic lateral sclerosis)	Spinocerebellar atrophy (Friedreich's ataxia)
Definition					
Age group, sex					
Gross appearance					
Localization					
Microscopical appearance					

4. Describe the types of CNS tumors (p-878-884):

Options	Astrocytomas	Oligodendroglioma	Ependymoma	Choroid Plexus Papilloma	Meningioma
Epidemiology					
Location					
Histological appearance					
histologic grades of differentiation					
Prognosis					

Musculoskeletal system

1. On A4 lists you should draw the macroscopic and microscopic morphology of organs and tissues in pathological processes (you can take information and illustrative material from the book «Pathology» by Harsh Mohan (seventh edition 2015):
   - Chronic suppurative osteomyelitis (Figure 26.3, p-823)
   - Rheumatoid arthritis (Figure 26.25, p-844)
   - Gouty tophus (Figure 26.26, p-846)
   - Anatomic locations of common primary bone and cartilage tumors (Figure 26.10, p-833)
2. Fill the table:

Options	Rheumatoid arthritis	Purulent arthritis	Osteoarthritis	Gouty arthritis	Psoriatic arthritis	Tuberculous arthritis
Definition						
Age group, sex						
Gross appearance						
Typical primary localization						
Microscopical appearance						

3. Determine the type of tumor

Location X-ray	Appearance	Type of tumor
Cortex of metaphysis	Radiolucent area surrounded by thickened bone	
Medulla of diaphysis	Destructive lesion with concentric "onion-skin" layering	
Medulla of diaphysis	Radiolucent central cartilage surrounded by a thin layer of bone ("O-ring sign")	
Medulla of metaphysic	Bone destruction with subperiosteal elevation (Codman's triangle)	
Metaphysis or epiphysis	"Soap bubble" appearance	

4. Write an essay on one of the following topics (1-2 pages of handwritten text):
   - The pathological anatomy of Paget's Disease: A focus on disorganized bone remodeling and vascularization.
   - Morphological changes in Fibrous Dysplasia: How abnormal bone formation leads to skeletal deformities.
   - Pathomorphological changes in Aseptic Necrosis of the Femoral Head: The role of ischemia in bone tissue destruction.

Infectious Diseases

1. Prepare presentations on one of the following topics:
   - Morphological features of brucellosis
   - Morphological features of herpes simplex
   - Morphological features of malaria
   - Morphological features of rabies
   - Morphological features of AIDS
   - Morphological features of chickenpox
   - Morphological features of cytomegalovirus infection

Requirements for presentations

The presentation should include the following slides (5-6 slides):

1. Title Slide: Include the topic of the presentation, presenter's name, institution, course, and date.
2. Introduction: Explain the relevance of the topic, the purpose of the presentation, and key objectives.
3. Main Body:
   - Describe pathological processes and key diseases relevant to the topic.
   - Highlight major morphological features and mechanisms of disease development.
4. References: List all sources used, including textbooks, research articles, and online resources.

Visuals and Illustrations

- Images: Use high-quality images (e.g., histological or gross pathology photos, diagrams).
- Captions: Label all images and diagrams (e.g., specimen type, pathological feature shown).

Unit 4.

Urinary system

1. On A4 lists you should draw the macroscopic and microscopic morphology of organs and tissues in pathological processes (you can take information and illustrative material from the book «Pathology» by Harsh Mohan (seventh edition 2015):
   - Classification of cystic lesions of the kidney (Table 20.2, p-644)
   - Contrasting features of acute nephritic and nephrotic syndromes (Table 20.7, 649)
   - Acute post-streptococcal Glomerulonephritis (Figure 20.13, 20.14, p-653, 654)
   - Rapidly Progressive Glomerulonephritis (Figure 20.15, 20.16, p-655, 656)
   - Membranous Glomerulonephritis (Figure 20.18, 20.19, p-657, 658)
   - Membranoproliferative Glomerulonephritis (Figure 20.20, 20.21, p-659)
   - Classification of kidney tumours (Table 20.19, p-681)

2. Fill in the table (p-643-647):

Options	Multicystic Renal Dysplasia	Adult Polycystic Kidney Disease	Infantile Polycystic Kidney Disease	Medullary Cystic Disease	Simple Renal Cysts
Definition					

Etiopathogenesis					
Gross appearance					
Microscopical appearance					

3. Prepare a table or a comparative essay that contrasts the salient features of urinary calculi (p-672-674).
4. Write a short report explaining how the pathophysiology of urinary obstruction leads to specific morphological changes (e.g., ischemia, increased interstitial pressure, parenchymal atrophy) (p-674-675).
5. Fill in the table (p-680-685):

Options	Adenocarcinoma of Kidney	Wilms' Tumour
Epidemiology		
Typical localization		
Morphological features and grades of differentiation		
Prognosis		

Reproductive system

- Prepare presentations on one of the following topics:
  - Orchitis. Morphological features
  - Epididymitis. Morphological features
  - Prostatitis: acute, chronic. Morphological features
  - Prostatic hyperplasia
  - Prostate tumors
  - Pathology of placenta

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  - Describe pathological processes and key diseases relevant to the topic.
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