Asian program – dentistry faculty

Syllabus for pathomorphology (2017/18)

List of detailed requirements:

**Introduction to pathology**
Students are obliged to know:
- definition and classifications of pathology/pathomorphology
- basic terms applied in pathology/pathomorphology
- the most important fixative agents and staining methods used in pathology

**Cellular reaction to injury**
Students are obliged to know:
- main causes and mechanisms of cell injury
- morphology of reversible cell injuries
- necrosis – definition, types, morphology, examples
- apoptosis – definition, mechanisms, morphology, examples
- pathologic accumulation of proteins, lipids, polysaccharides and pigments – types, pathogenesis, examples, morphology, special staining methods
- pathologic calcification – definition, classification, pathogenesis, examples, morphology

**Hemodynamic disorders**
Students are obliged to know:
- edema – definition, pathophysiologic categories, morphology, clinical consequences
- definition of hydrothorax, hydropericardium, ascites, anasarca
- hyperemia and congestion – definition, morphology, typical examples
- hemorrhage – definition, classifications, examples, clinical consequences
- thrombosis – definition, pathogenesis, common hypercoagulable states
- venous and arterial thrombi – etiology, morphology, clinical consequences, fate of thrombus
- embolism – definition, types, examples
- infarction – definition, types, examples, morphology, clinical consequences
- shock – pathogenesis, main types, morphology, clinical course
Inflammation
Students are obliged to know:
- inflammation – definition, causative agents, cardinal signs, systemic manifestations
- acute and chronic inflammations – phases (major components), cells engaged in the process, chemical mediators, types of macrophages, outcome
- morphologic classification (patterns) of inflammation
- classification of exudative inflammation
- serous and catarrhal inflammation – definition, examples, morphology
- fibrinous and purulent inflammation – definition, classification, examples, morphology
- definition and examples of pyorrhea, empyema, phlegmon, abscess
- destructive and gangrenous inflammation – definition, examples
- proliferative inflammation – definition, examples
- granulomatous inflammation – definition, morphology, examples
- generalized infections – ways of spread of infections; definition of sepsis, pyemia, bacteriemia, toxemia; morphology of sepsis and pyemia
- selected fungal and parasitic diseases i.e., aspergillosis, trichinosis

Tissue renewal and repair. Disorders of growth.
Students are obliged to know:
- basis of normal cell proliferation and tissue growth
- regeneration and repair (healing) – definition, mechanisms, examples
- cutaneous wound healing – types, steps, influencing factors
- hyperplasia, hypertrophy, atrophy – definition, mechanisms, examples
- metaplasia – definition, mechanisms, examples, significance
- intraepithelial neoplasia (dysplasia) – definition, grades, examples, significance

Neoplasia
Students are obliged to know:
- definition, nomenclature and classifications of neoplasms
- gross and microscopic features of benign and malignant neoplasms
- modes of tumor growth and spread
- locally malignant tumors – definition, examples
- in situ neoplasia (carcinoma) – definition, examples, morphology
- grading and staging of malignant tumors – definition, systems, clinical significance
- genetic factors and nonhereditary conditions predisposing to cancer; carcinogenic agents; essential alterations in cell physiology for malignant transformation; molecular basis of multistep carcinogenesis; host defense against tumors
- effects of neoplasms on the host on the clinical level (local and hormonal, cachexia, paraneoplastic syndromes) – pathogenesis, examples of syndromes and related tumors
- classic and modern laboratory diagnosis of neoplasms
Cardiovascular system pathology

Students are obliged to know:
- left- and right-sided heart failure – causative agents, pathogenesis, morphology, consequences
- myocardial infarction – definition, risk factors, pathogenesis, anatomical location, morphology (sequences of gross and microscopic changes), clinical features, consequences, complications
- myocarditis – etiology, types, morphology, clinical course
- endocarditis – etiology, types, morphology, consequences
- pericarditis – etiology, types, morphology, consequences
- tumors of the heart – incidence, classification, morphology, clinical significance
- atherosclerosis – risk factors, pathogenesis, typical lesions and their distribution, complications
- hypertensive vascular disease – etiology, morphology, consequences
- aneurysm and dissections – definition, classifications, complications
- periarteritis nodosa – pathogenesis, morphology, consequences
- varicose veins – definition, distribution, complications
- tumors of blood vessels – classification, morphology, clinical significance

Respiratory system pathology

Students are obliged to know:
- pulmonary edema and congestion – etiology, morphology, clinical features
- respiratory distress syndrome – pathogenesis, clinical associations, morphology, clinical course
- chronic obstructive pulmonary diseases – definition, examples, common features
- selected pneumoconiosis i.e., coal workers’ pneumoconiosis, silicosis, asbestosis – pathogenesis, morphology, clinical course
- pulmonary embolism and infarction – causes, morphology, consequences
- pneumonia – predisposing factors, classification, etiology, morphology, stages of lobar pneumonia, clinical course, complications
- tuberculosis of the lung – etiology, classification, morphology, clinical course
- sarcoidosis of the lung – etiology, morphology, clinical course
- primary malignant tumors of the lung – classification, predisposing factors, origin, precursor lesions, anatomical location, morphology, clinical course
- carcinoid – origin, anatomical location, morphology
- secondary (metastatic) tumors of the lung – anatomical location of primary tumors, morphology
- pleural effusion – types, etiology
- tumors of the pleura – types, morphology, clinical course
**Endocrine glands pathology**

Students are obliged to know:
- pituitary adenoma – classification, morphology, clinical signs
- hyper- and hypothyroidism – definitions, etiology, clinical course
- tumors of the parathyroid gland – classification, morphology, clinical signs
- goiter, toxic goiter, non-toxic-goiter, parenchymatous goiter, multinodular goiter – definitions
- Graves disease and multinodular goiters – pathogenesis, morphology, clinical course
- thyroiditis – etiology, morphology, clinical course
- tumors of the thyroid gland – classification, genetic and environmental factors, morphology, clinical course
- adrenal insufficiency – classification, causes, morphology, clinical course
- tumors of the adrenal cortex – classification, morphology, clinical course
- diabetes mellitus – types, pathogenesis of main forms of diabetes and its complications, morphology, clinical course, complications

**Urinary system pathology**

Students are obliged to know:
- clinical manifestations of renal diseases
- glomerulonephritis – classification, pathogenesis, morphology including immunofluorescence microscopy and electron microscopy, clinical course
- systemic diseases with glomerular involvement i.e., systemic lupus erythematosus, diabetes mellitus and amyloidosis – morphology, clinical course
- acute tubular necrosis – pathogenesis, morphology, clinical course
- tubulointestinal nephritis – etiology and types
- pyelonephritis – etiology, pathogenesis, types, morphology, clinical course
- tumors of the kidney – classification, predisposing factors, morphology, clinical signs
- urinary tract obstruction – causes, morphology, consequences
- tumors of the urinary bladder – classification, predisposing factors, morphology, clinical signs

**Alimentary system pathology**

Students are obliged to know:
- Barrett esophagus – definition, morphology, clinical significance
- tumors of the esophagus – classification, risk factors, morphology, clinical course
- gastritis – types, pathogenesis, morphology, clinical course
- tumors of the stomach – classification, predisposing factors, morphology, early gastric cancer, clinical course
- idiopathic inflammatory bowel disease – pathogenesis, distribution of lesions, morphology, clinical features, differences between Crohn disease and ulcerative colitis
- ischemic bowel disease – predisposing factors, anatomical location, morphology, clinical features
- tumors of the large and small intestine – classification, epidemiology, predisposing factors, morphology, anatomical location, staging of colorectal cancer, clinical course
- intestinal polyps – definition, classification, morphology, significance
- appendicitis – etiology, morphology, complications
- peritonitis – etiology, morphology, complications
- liver cirrhosis – etiology, pathogenesis, classifications, morphology, consequences, main causes of liver cirrhosis in children
o viral hepatitis – characteristics of viruses, clinicopathologic syndromes, morphology, consequences
o tumors and tumor-like lesions of the liver – classification, predisposing factors, morphology, clinical signs
o cholelithiasis and cholecystitis – predisposing factors, pathogenesis, morphology, clinical course
o carcinoma of the gallbladder – predisposing factors, morphology, clinical course
o acute and chronic pancreatitis – etiology, pathogenesis, morphology, clinical course
o tumors of the pancreas – classification, risk factors, precursor lesions, morphology, anatomical location, clinical course

Nervous system pathology
Students are obliged to know:
o increased intracranial pressure and herniations – causes, morphology, types of herniation, clinical signs, consequences
o traumatic vascular injuries – types, causes, morphology, clinical signs, consequences
o cerebral infarction – causes, types, morphology, clinical signs
o subarachnoid hemorrhage – causes, common locations of saccular aneurysms, morphology, clinical signs, consequences
o intracerebral hemorrhage – causes, morphology, clinical signs, consequences
o meningitis and brain abscess – etiology, morphology, clinical signs, consequences
o meningoencephalitis – etiology, morphology, clinical course
o tumors of central nervous system – classification, grading, morphology, clinical signs

Bones and joints pathology/Soft tissue tumors
Students are obliged to know:
o osteoporosis – definition, types, pathogenesis, morphology, clinical course
o Paget disease (osteitis deformans) – pathogenesis, morphology, clinical course, significance
o tumors and tumor-like lesions of bones – classification, predisposing factors, anatomical locations, morphology, clinical course
o osteoarthritis – pathogenesis, anatomical location, morphology, clinical course
o rheumatoid arthritis – pathogenesis, anatomical location, morphology, clinical course, consequences
o tumors and tumor-like lesions of joints – examples, morphology, clinical features

Lymphoid system pathology
Students are obliged to know:
o acute and chronic non-specific lymphadenitis – etiology, morphology, clinical course
o basic rules of WHO classification of lymphoid neoplasms
o Hodgkin lymphoma – definition, etiology, pathogenesis, types, clinical course, prognosis
o selected non-Hodgkin lymphomas i.e., acute lymphoblastic leukemia, chronic lymphocytic leukemia/small lymphocytic lymphoma, multiple myeloma, follicular lymphoma, MALT lymphoma, diffuse large B-cell lymphoma – incidence, morphology, typical cytogenetic and molecular features, clinical course, prognosis