

1. A patient has been hospitalized with complaints of headache, muscle pain during movement, pain during swallowing, chewing, and eye rotation, weakness, increased body temperature, edema of the eyelids and face. According to the patient's history, he was eating pork, bought from a private seller. What type of helminthiasis is most likely in this patient?

- A. Trichinellosis
- B. Ascariasis
- C. Trichuriasis
- D. Enterobiasis
- E. Ancylostomiasis

2. Two nucleotides have been lost in the sequence of DNA nucleotides due to the effect of radiation. What type of mutation occurred in the DNA strand?

- A. Deletion
- B. Duplication
- C. Inversion
- D. Translocation
- E. Replication

3. A patient had a myocardial infarction in the area of the anterior wall of the left ventricle. In the basin of what blood vessel did the disruption of blood circulation occur in this case?

- A. Anterior interventricular branch of the left coronary artery
- B. Anterior ventricular branches of the right coronary artery
- C. Circumflex branch of the left coronary artery
- D. Left marginal branch of the left coronary artery
- E. Atrioventricular branches of the left coronary artery

4. As a result of an injury to the anterior surface of the shoulder, a man cannot flex his arm in the elbow joint. What muscle is likely to be damaged in this case?

- A. *M. biceps brachii*
- B. *M. deltoideus*
- C. *M. pectoralis major*
- D. *M. triceps brachii*
- E. *M. anconeus*

5. In an experiment, ribosomes were destroyed in polychromatophilic erythroblasts of human red bone marrow. In this case, the synthesis of a certain specific protein will be disturbed. Name this protein.

- A. Globin
- B. Fibrinogen
- C. Collagen
- D. Elastin
- E. Laminin

6. Gonoblasts (precursor germ cells) were detected in an embryo at the term of 2-3 weeks. Where do these cells differentiate?

- A. Yolk sac
- B. Mesenchyme
- C. Embryonic ectoderm
- D. Dermatomes
- E. Embryonic endoderm

7. A large cell with mildly basophilic cytoplasm and a bean-shaped nucleus was detected in the smear of peripheral blood. The cell is the largest among those in sight. What type of cell is it?

- A. Monocyte
- B. Macrophage
- C. Plasma cell
- D. Medium sized lymphocyte
- E. Small lymphocyte

8. In an experiment, one of the populations of blood cells was selectively stimulated. As a result, the permeability of blood vessels increased significantly, causing edema of the perivascular tissue and slowing down the blood coagulation process. What blood cells were stimulated in the experiment?

- A. Basophils
- B. Erythrocytes
- C. Platelets
- D. Eosinophils
- E. Lymphocytes

9. During puberty, the cells of the male gonads begin to produce the male sex hormone testosterone that causes the development of secondary sexual characteristics. What cells of male gonads produce this hormone?

- A. Leydig cells
- B. Sustentacular cells
- C. Sertoli cells
- D. Supporting cells
- E. Spermatozoa

10. A histological section of a human embryo demonstrates a vesicle connected to the gut tube. This vesicle is a provisional organ. Primary germ cells and primary erythrocytes (megaloblasts) are located in its wall. What provisional organ is observed in this case?

- A. Yolk sac
- B. Allantois
- C. Placenta
- D. Umbilical cord
- E. Amnion

11. A woman has edemas and high levels of urine protein. What nephron segment is dysfunctional in this case, as indicated by these signs?

- A. Renal corpuscle
- B. Proximal convoluted tubule
- C. Distal convoluted tubule
- D. Descending limb of the loop of Henle
- E. Ascending limb of the loop of Henle

12. A patient has diabetes mellitus with fasting hyperglycemia of over 7.2 mmol/L. What blood plasma protein would allow to assess the patient's glycemia levels retrospectively (4–8 weeks prior to the examination)?

- A. Glycated hemoglobin
- B. Albumin
- C. Fibrinogen
- D. C-reactive protein
- E. Ceruloplasmin

13. Iron is released in the process of hemoglobin catabolism. Then, as a part of a special transport protein, it arrives into the bone marrow and is used again for hemoglobin synthesis. Name this transport protein.

- A. Transferrin
- B. Transcobalamin
- C. Haptoglobin
- D. Ceruloplasmin
- E. Albumin

14. A patient has been diagnosed with megaloblastic anemia. This disease can be caused by the insufficient amount of a certain compound in the body. Name this compound.

- A. Cyanocobalamin
- B. Glycine
- C. Copper
- D. Cholecalciferol
- E. Magnesium

15. In diabetes mellitus, the levels of ketone bodies in the blood increase, causing metabolic acidosis. From what substance are ketone bodies synthesized?

- A. Acetyl-CoA
- B. Succinyl-CoA
- C. Propionyl-CoA
- D. Malonyl-CoA
- E. Methylmalonyl-CoA

16. What adrenal hormone is synthesized with the participation of tyrosine?

- A. Adrenaline
- B. Glucagon
- C. Thyroxine
- D. Aldosterone
- E. Cortisol

17. When modelling inflammation of a lower limb in a test animal, the animal's body temperature and levels of antibodies and leukocytes in the blood increased. What substances have caused the development of this general response in the body in the course of the inflammation process?

- A. Interleukins
- B. Glucocorticoids
- C. Mineralocorticoids
- D. Leukotrienes
- E. Somatomedins

18. A patient diagnosed with chronic renal failure presents with anorexia, dyspepsia, heart rhythm disturbances, and skin itching. What is the main mechanism of development of these disorders?

- A. Accumulation of nitrogen metabolism products in the blood
- B. Disorders of lipid metabolism
- C. Changes in carbohydrate metabolism
- D. Renal acidosis
- E. Water-electrolyte imbalance

19. A woman was diagnosed with purulent stomatitis. What complete blood count finding is characteristic of this disease?

- A. Leukocytosis
- B. Lymphocytosis
- C. Anemia
- D. Monocytosis
- E. Thrombocytosis

20. A 50-year-old patient was diagnosed with myxedema. The development of this pathology is caused by disturbed production of certain hormones. Name these hormones.

- A. Thyroxine and triiodothyronine
- B. Cortisol and aldosterone
- C. ACTH and growth hormone
- D. Oxytocin and vasopressin
- E. Insulin and glucagon

21. A case of diphtheria made it necessary to carry out preventive vaccination in the group of students. What should be used in this case to induce artificial active immunity in the students?

- A.** Diphtheria anatoxin
- B.** Anti-diphtheria serum
- C.** Specific immunoglobulin
- D.** DPT vaccine
- E.** Killed bacterial vaccine

22. A patient with acute leukemia was prescribed an anti-tumor agent with an antimetabolite effect — a folic acid antagonist. What drug was prescribed in this case?

- A.** Methotrexate
- B.** Fluorouracil
- C.** Myelosan (Busulfan)
- D.** Mercaptopurine
- E.** Synoestrol (Hexestrol)

23. A patient with syphilis, while undergoing treatment with bismuth-based drugs, developed gray spots on the oral mucosa and symptoms of nephropathy. What drug is used as an antidote in cases of poisoning caused by bismuth-based drugs?

- A.** Unithiol
- B.** Nalorphine
- C.** Bemegride
- D.** Naloxone
- E.** Methylene blue

24. What cells in the epidermis of the skin together with the terminals of afferent fibers form tactile receptors?

- A.** Merkel cells
- B.** Melanocytes
- C.** Basal epidermal cells
- D.** Spinous cells
- E.** Langerhans cells

25. During absolute starvation, the process of oxidation of organic compounds is the only source of water in the body. What substance under these conditions becomes the main source of endogenous water?

- A.** Fats
- B.** Proteins
- C.** Carbohydrates
- D.** Glycoproteins
- E.** Lipoproteins

26. A 50-year-old patient has been diagnosed with gout. In this case, disturbed metabolism of certain substances will be observed. Name these substances.

- A.** Purines
- B.** Fats
- C.** Amino acids
- D.** Carbohydrates
- E.** Pyrimidine

27. An 18-year-old boy has been diagnosed with muscular dystrophy. What substance increases in the blood serum in this pathology?

- A.** Creatine
- B.** Myoglobin
- C.** Myosin
- D.** Lactate
- E.** Alanine

28. A patient has high levels of vasopressin (antidiuretic hormone) in the blood. What changes in the patient's diuresis will occur in this case?

- A.** Oliguria
- B.** Polyuria
- C.** Anuria
- D.** Glycosuria
- E.** Natriuria

29. One of the important clinical blood test is the determination of the leukocyte formula. What does this indicator show?

- A.** Percentage ratio of different forms of leukocytes
- B.** The total amount of leukocytes
- C.** Percentage ratio of granulocytes and agranulocytes
- D.** The percentage of lymphocytes in relation to the total number of white blood cells
- E.** Percentage ratio of granulocytes

30. In an experiment, urethane poisoning was induced in a test animal. What type of hypoxia occurred as a result?

- A.** Tissue hypoxia
- B.** Hemic hypoxia
- C.** Circulatory hypoxia
- D.** Respiratory hypoxia
- E.** Hypoxic hypoxia

31. A patient has undergone appendectomy. During the postoperative period, the patient was receiving an antibiotic. After a short while, the patient developed complaints of hearing impairment. What group of antibiotics has characteristic side effects that manifest as hearing impairment and damage to the vestibular apparatus?

- A. Aminoglycosides
- B. Penicillins
- C. Tetracyclines
- D. Macrolides
- E. Polymyxins

32. A histological section of an unknown organ has been prepared. The resulting microslide demonstrates its cortical and medullary substances. The medullary substance is represented by ribbon-like strands of B-lymphocytes. What organ is it?

- A. Lymph node
- B. Thymus
- C. Kidney
- D. Cerebellum
- E. Cerebral cortex

33. A patient diagnosed with essential hypertension and bronchitis as a concomitant diagnosis needs to be prescribed treatment. What group of drugs can be prescribed in this case?

- A. Selective β_1 -blockers
- B. Non-selective β -blockers
- C. Nicotinic antagonists
- D. Nicotinic agonists
- E. Muscarinic agonists

34. Monoamine oxidase enzyme plays a special role in the metabolism of catecholamine mediators. How does this enzyme inactivate such mediators as noradrenaline, adrenaline, and dopamine?

- A. Oxidative deamination
- B. Linking of an amino group
- C. Removal of a methyl group
- D. Carboxylation
- E. Hydrolysis

35. Vidal's reaction is used for serological diagnostics of typhoid fever. What mechanism of interaction between the antigens and antibodies is it based on?

- A. Agglutination
- B. Precipitation
- C. Bacteriolysis
- D. Hemolysis
- E. Immobilization of bacteria

36. After an injury, the patient presents with the loss of skin sensitivity on the posterior surfaces of the shoulder and forearm. In this case, damage will be observed in the branches of which nerve?

- A. *N. radialis*
- B. *N. ulnaris*
- C. *N. medianus*
- D. *N. axillaris*
- E. *N. musculocutaneus*

37. A man was hospitalized after a bee sting with signs of anaphylactic shock. What medicine must be administered to this patient?

- A. Adrenaline hydrochloride
- B. Morphine hydrochloride
- C. Clotrimazole
- D. Atracurium besylate
- E. Ibuprofen

38. A woman complains of itching and burning in the area of her external genitalia and purulent foamy discharge from them. Study of the discharge detected unicellular pear-shaped organisms with 4 flagella, an undulating membrane, and a spike at the end of the body. What pathogen was detected in this case?

- A. *Trichomonas vaginalis*
- B. *Lambliia intestinalis*
- C. *Trichomonas hominis*
- D. *Toxoplasma gondii*
- E. *Entamoeba gingivalis*

39. A patient complains of constant thirst and fatigability. The patient's 24-hour diuresis is 3–4 liters. Glucose levels in the blood are within the normal range. What hormone is deficient in this case, causing these changes in the body?

- A. Vasopressin
- B. Glucagon
- C. Insulin
- D. Aldosterone
- E. Natriuretic hormone

40. A patient has a mitral valve disorder. Where will the pathological noise be heard during auscultation?

- A. Apex of the heart
- B. Second intercostal space to the right of the sternum
- C. Second intercostal space to the left of the sternum
- D. Area of the xiphoid process
- E. Third intercostal space to the right of the sternum

41. A 17-year-old boy complains of sleep disturbances, weight loss, and palpitations. After examination, he was diagnosed with thyroid hyperplasia, II degree. What hormone level imbalance would be most characteristic of this disease?

- A. Increased thyroxine levels
- B. Reduced thyroxine levels
- C. Increased somatotropin levels
- D. Reduced somatotropin levels
- E. Reduced triiodothyroxine levels

42. A patient was informed that serological testing for AIDS would consist of two stages. What reaction is used to test the blood serum for the presence of antibodies to the virus at the first stage of the diagnostics?

- A. Enzyme-linked immunosorbent assay
- B. Immunoblotting
- C. Radioimmunoassay
- D. Immunofluorescence
- E. Indirect hemagglutination assay

43. Several cases of tonsillitis are observed among the students at a boarding school. Microscopy of the smears prepared from the material obtained via a tonsil swab revealed thin yellow rod-shaped microorganisms with dark blue granules at their ends, arranged in the form of the Roman numeral five. The microorganisms were detected using the Neisser stain. What disease can be caused by the detected pathogen?

- A. Diphtheria
- B. Infectious mononucleosis
- C. Listeriosis
- D. Tonsillitis
- E. Scarlet fever

44. During examination, the signs of acromegaly were detected in a patient. What endocrine gland is involved in this pathological process?

- A. Adenohypophysis
- B. Neurohypophysis
- C. Pineal gland
- D. Adrenal glands
- E. Thyroid gland

45. Microscopy reveals a parenchymal organ with epithelial strands that form zona glomerulosa, zona fasciculata, and zona reticularis. The central part of the organ is represented by clusters of chromaffin cells. What organ is it?

- A. Adrenal gland
- B. Thyroid gland
- C. Pineal gland
- D. Liver
- E. Pituitary gland

46. A doctor describes a specimen that demonstrates the wall of a tubular organ that is a component of the gastrointestinal tract. The doctor noted the presence of

lymph node clusters in the lamina propria of the mucosa and in the submucosal base, above which the crypts are almost absent. What part of the gastrointestinal tract has such structural features?

- A. Vermiform process
- B. Jejunum
- C. Large intestine
- D. Ileum
- E. Stomach

47. A patient has bile duct inflammation. Mobile, pear-shaped, binucleate protozoa with a supporting rod (axostyle) were detected in the portions of bile. What disease is indicated by their presence?

- A. Giardiasis
- B. Leishmaniasis
- C. Intestinal amebiasis
- D. Intestinal balantidiasis
- E. Trichomoniasis

48. The dentist examines a pregnant woman. There are 3 round lesions up to 1 cm in diameter on her oral mucosa. The lesions appeared 3 days ago, they have a white-gray surface and red margin. What disease can be characterized by these pathological changes?

- A. Aphthous stomatitis
- B. Leukoplakia
- C. Catarrhal stomatitis
- D. Necrotizing ulcerative stomatitis
- E. Gangrenous stomatitis

49. Tooth section demonstrates a structure with alternating light and dark stripes, located perpendicular to its surface, and thin parallel lines of growth. What dental tissue is it?

- A. Enamel
- B. Dentin
- C. Cellular cementum
- D. Acellular cementum
- E. Pulp

50. A patient has been diagnosed with cheilosis, angular stomatitis, glossitis. What pathological condition is observed in the patient?

- A. Hypovitaminosis B_2
- B. Hypovitaminosis C
- C. Antioxidant deficiency
- D. Hypovitaminosis A
- E. Infectious stomatitis

51. During an autopsy, an ovarian section shows a round neoplasm 2.5 cm in diameter. This formation contains a clear pale yellow fluid and is surrounded by

a smooth glistening wall. What formation was most likely detected during the autopsy?

- A. Cyst
- B. Nodule
- C. Ulcer
- D. Infiltrate
- E. Nodule with central necrosis

52. A patient presents with impaired pain and thermal sensitivity of the tongue. What papillae are affected in this case?

- A. Filiform, cone-shaped
- B. Foliate, fungiform
- C. Circumvallate, filiform
- D. Cone-shaped, circumvallate
- E. Fungiform, filiform

53. A woman has undergone a surgery for a femoral hernia. What is the location of the hernial opening projection in this case?

- A. Femoral triangle
- B. Gluteal region
- C. Inguinal region
- D. Pubic region
- E. —

54. A patient presents with restricted downward and lateral movements of the eyeball. What cranial nerve is damaged in this case?

- A. *N. trochlearis*
- B. *N. abducens*
- C. *N. oculomotorius*
- D. *N. ophthalmicus*
- E. *N. infraorbitalis*

55. What tooth structure has blood vessels?

- A. Pulp
- B. Enamel cuticle
- C. Acellular cementum
- D. Dentin tubules
- E. Cellular cementum

56. A 14-year-old patient has been diagnosed with impaired twilight vision. What vitamin is deficient in this case?

- A. A
- B. B₁
- C. B₆
- D. C
- E. B₁₂

57. A patient was diagnosed with ischemic heart disease and prescribed a calcium channel blocker agent. What drug is it?

- A. Amlodipine
- B. Eldepryl (Selegiline)
- C. Thiothiazoline
- D. Nitroglycerin
- E. Carvedilol

58. Biogenic amines form under the effect of decarboxylase enzymes. What biogenic amine triggers the multistage regulation mechanism of *HCl* secretion in the stomach?

- A. Histamine
- B. Serotonin
- C. Dopamine
- D. GABA
- E. Glutamine

59. A patient came to a doctor complaining of infertility. Barr bodies were detected in the nuclei of the most cells of the patient's buccal mucosa. In this case, the patient's infertility is most likely associated with which disorder?

- A. Klinefelter syndrome
- B. Polysomy Y
- C. Down syndrome
- D. Trisomy X
- E. Tetrasomy X

60. A patient has sinus tachycardia. To restore the rhythm, the doctor prescribed potassium supplements and recommended eating foods rich in potassium. What is the mechanism of action of potassium in the heart?

- A. Reduces the pacemaking activity of the sinus node
- B. Increases the pacemaking activity of the sinus node
- C. Activates the sympathetic division of the autonomic nervous system
- D. Activates the parasympathetic division of the autonomic nervous system
- E. Inhibits the sympathetic division of the autonomic nervous system

61. In a chemical synapse, excitation is transmitted via a neurotransmitter. What ions facilitate its release into the synaptic cleft?

- A. Calcium ions
- B. Potassium ions
- C. Sodium ions
- D. Chlorine ions
- E. Magnesium ions

62. Cyanide poisoning causes disturbed activity in a certain enzyme. Name this enzyme.

- A. Cytochrome oxidase
- B. Catalase
- C. Peroxidase
- D. ATP synthase
- E. NADPH dehydrogenase

63. A child with Von Gierke disease has hepatomegaly, seizures, and hypoglycemia, observed especially often on an empty stomach or during stress. What enzyme has a genetic defect in patients with Von Gierke disease?

- A. Glucose 6-phosphatase
- B. Glycogen phosphorylase
- C. Phosphoglucomutase
- D. α -1,4-glycosidase
- E. Amylo-1,6-glycosidase

64. During vascular-platelet hemostasis, platelet factor (PF-8) thrombostenin is released from destroyed platelets. What is its function?

- A. Thrombus retraction
- B. Erythrocyte agglutination
- C. Platelet adhesion
- D. Erythrocyte hemolysis
- E. Platelet aggregation

65. A patient with chronic enteritis developed anemia. Blood tests revealed hypochromia of erythrocytes, microaniscytosis, and poikilocytosis. What type of anemia is observed in the patient?

- A. Iron deficiency anemia
- B. B_{12} deficiency anemia
- C. Aplastic anemia
- D. Hemolytic anemia
- E. Sideroblastic anemia

66. In some hereditary diseases (e.g., Kearns-Sayre syndrome), mitochondrial destruction can be observed. What cellular processes can be disturbed as a result of it?

- A. ATP synthesis
- B. Nuclear division
- C. Crossingover
- D. Protein synthesis
- E. Lipid synthesis

67. Microscopy of the patient's vaginal discharge detected Gram-negative bean-shaped diplococci. What is the provisional diagnosis in this case?

- A. Gonorrhea
- B. Syphilis
- C. Chlamydiosis
- D. Mycoplasmosis
- E. Toxoplasmosis

68. What hereditary disease combines

hepatic cirrhosis, dystrophic processes in the brain, decreased ceruloplasmin levels in the blood plasma, and disturbed copper metabolism in the body?

- A. Wilson's disease
- B. Tay-Sachs disease
- C. Niemann-Pick disease
- D. Marfan syndrome
- E. Gilbert syndrome

69. A 53-year-old man, a long time smoker, presents with a white patch 5x3 cm in size that looks like a plaque with blurry boundaries on the lateral surface of the tongue. Histology of the biopsy material obtained from the affected area allowed diagnosing significant keratinization and thickening of the mucosal epithelium and acanthosis. Under the epithelium, in the connective tissue, there is a mild infiltration consisting of lymphocytes, macrophages, and plasma cells. What type of damage to the oral mucosa is observed in this case?

- A. Leukoplakia
- B. Erythroplakia
- C. Hyperkeratosis
- D. Carcinoma in situ
- E. Keratinizing squamous cell carcinoma

70. A 20-year-old woman has made an appointment with a doctor. Objectively, she is tall, with enlarged lips, nose, hands, and feet. In this case, increased secretion can be suspected in a certain gland. Name this gland.

- A. Anterior pituitary
- B. Parathyroid gland
- C. Pineal gland
- D. Thyroid gland
- E. Posterior pituitary

71. In an experiment, blood flow rate (mL/min) was measured in various organs and tissues. What organ has the highest blood flow rate per 100 g of its mass?

- A. Thyroid gland
- B. Skin
- C. Smooth muscles
- D. Skeletal muscles
- E. Stomach

72. A 9-year-old boy presents with delayed sexual development. What organ produces male sex hormones that regulate development of the genitals before puberty?

- A. Adrenal glands
- B. Testicles
- C. Hypothalamus
- D. Hypophysis
- E. Thymus

73. A patient, who for a long time had been suffering from fibrocavitary tuberculosis accompanied by general emaciation, died of cardiopulmonary failure. Histology of the autopsy material detected accumulation of yellow-brown pigment in the liver, myocardium, and skeletal muscles, indicating disturbed metabolism of a certain pigment in the patient. Name this pigment.

- A. Lipofuscin
- B. Hemosin
- C. Melanin
- D. Hemosiderin
- E. Porphyrin

74. Exposure to physical and chemical mutagens can cause DNA damage. Name the ability of cells to correct the damage in DNA molecules.

- A. Repair
- B. Replication
- C. Transcription
- D. Translation
- E. Regeneration

75. A 25-year-old patient suddenly developed a bronchospasm at the dental office. The doctor administered salbutamol in the form of an inhalation. What is the mechanism of action of this drug?

- A. Stimulation of β_2 -adrenoceptors
- B. Stimulation of β_1 -adrenoceptors
- C. Blockade of H_1 -histamine receptors
- D. Blockade of phosphodiesterase
- E. Blockade of muscarinic acetylcholine receptors

76. A first-year school student received a facial injury in the gym, resulting in bleeding from the lower lip. In this case, damage will be observed in the branches of which artery.

- A. *A. facialis*
- B. *A. lingualis*
- C. *A. infraorbitalis*
- D. *A. alveolaris superior*
- E. *A. maxillaris*

77. Examination of a pregnant woman detects disturbed *telencephalon* development in the fetus. What brain structures will be underdeveloped as a result?

- A. *Hemispheria cerebri*
- B. *Cerebellum*
- C. *Pons*
- D. *Medulla oblongata*
- E. *Thalamus*

78. What drug is a beta-lactam antibiotic?

- A. Benzylpenicillin
- B. Erythromycin
- C. Ofloxacin
- D. Bisepitol (Tri-methoprim/sulfamethoxazole)
- E. Tetracycline

79. What compound forms in the blood in cases of carbon monoxide poisoning?

- A. Carboxyhemoglobin
- B. Methemoglobin
- C. Carbaminohemoglobin
- D. Deoxyhemoglobin
- E. Fetal hemoglobin

80. Contraction of cross-striated muscles is impossible without calcium. What is the role of calcium ions in the formation of actin-myosin cross-bridges?

- A. Binding to troponin
- B. Binding to cholinergic receptors
- C. Binding to serotonin receptors
- D. Binding to histamine receptors
- E. Binding to adrenoceptors

81. During auscultation, the second heart sound can be heard better than the first in the II intercostal space along the parasternal line on the left. What valve causes this phenomenon when it closes?

- A. Pulmonary semilunar valve
- B. Aortic semilunar valve
- C. Left bicuspid valve
- D. Right tricuspid valve
- E. Bicuspid and tricuspid valves

82. A patient has been diagnosed with mucopolysaccharidosis. What substances are typically deposited in various tissues of the body in this disease?

- A. Glycosaminoglycans
- B. Triglycerides
- C. Glycogen
- D. Fructose
- E. Fatty acids

83. A woman with pheochromocytoma developed tachycardia, increased blood pressure, and sharp pain in the epigastric region after mental stress. What has caused the deterioration of the patient's condition?

- A. Massive release of catecholamines by the adrenal glands
- B. Noradrenaline release by sympathetic nerves
- C. Activation of vegetative nuclei of the hypothalamus
- D. Increased secretion of thyroid hormones
- E. Increased synthesis of corticotropin

84. In cases of acidification of saliva and uncompensated carious process, the activity of a certain enzyme decreases. Name this enzyme.

- A. Alkaline phosphatase
- B. Elastase
- C. Proteinase
- D. Hyaluronidase
- E. Collagenase

85. A 68-year-old woman with pulmonary tuberculosis has been prescribed an antibiotic that can cause red coloring of urine and tear fluid. What drug is it?

- A. Rifampicin
- B. Ethambutol
- C. Ethionamide
- D. Tetracycline
- E. Co-amoxiclav

86. During a surgery, the patient started bleeding from the vein that drains into *v. subclavia*. What vessel is damaged in this case?

- A. *V. jugularis externa*
- B. *V. thyroidea superior*
- C. *V. azygos*
- D. *V. hemiazygos*
- E. *V. facialis*

87. A boy presents with abnormalities in the facial part of the skull. He has maxillary hypoplasia, a high-arched palate, and incorrect development of teeth. Using the cytogenetic method, the karyotype of 47, XY, 21+ was determined. What pathological syndrome is observed in the patient?

- A. Down syndrome
- B. Patau syndrome
- C. Edwards syndrome
- D. Klinefelter syndrome
- E. Turner syndrome

88. The process of tissue respiration is accompanied by the oxidation of organic compounds and the synthesis of macroergic molecules. In what organelles does this process take place?

- A. Mitochondria
- B. Lysosomes
- C. Ribosomes
- D. Peroxisomes
- E. Golgi complex

89. A sample - a puncture material obtained from an inguinal lymph node - was sent to the laboratory for especially dangerous infections. A Gram-stained smear shows a short ovoid red rod with more intense staining at its poles. What diagnosis can be suspected in this case?

- A. Plague
- B. Pertussis
- C. Diphtheria
- D. Dysentery
- E. Syphilis

90. In some diseases, a certain enzyme required for lipid hydrolysis is deficient in lysosomes. What hereditary disease is caused by insufficient activity of lysosomal enzymes?

- A. Tay-Sachs disease
- B. Hemophilia
- C. Hereditary immunodeficiency
- D. Down syndrome
- E. Marfan syndrome

91. Hypokalemia is the most common complication of taking diuretics. What diuretic has a potassium-sparing effect?

- A. Spironolactone
- B. Cyclomethiazide (Cyclopentiazide)
- C. Etacrynic acid
- D. Clofelin (Clonidine)
- E. Pentamine (Azamethonium bromide)

92. A patient had a tooth extracted. Its crown is chisel-shaped, wide, with narrow edge. The root is cone-shaped and flattened on the sides. What tooth was extracted?

- A. Upper incisor
- B. Upper premolar
- C. Lower incisor
- D. Lower canine
- E. Lower premolar

93. A mandibular fracture caused the bleeding from *a. alveolaris inferior*. In this case, damage will be observed in a branch of which artery.

- A. *A. maxillaris*
- B. *A. carotis externa*
- C. *A. carotis interna*
- D. *A. mentalis*
- E. *A. facialis*

94. A patient diagnosed with oral candi-

diasis was prescribed an antifungal drug. What drug was prescribed for this patient?

- A. Fluconazole
- B. Levomycetin (Chloramphenicol)
- C. Ampicillin
- D. Biseptol (Co-trimoxazole)
- E. Erythromycin

95. A patient has a skull injury. X-ray shows that the fracture line is located at the base of the skull and passes between the foramen ovale and foramen rotundum. What cranial bone is damaged in this case?

- A. Sphenoid bone
- B. Occipital bone
- C. Ethmoid bone
- D. Temporal bone
- E. Zygomatic bone

96. An injured person has a fracture of the zygomatic arch. The lower jaw is shifted forwards and the patient complains of inability to move it backwards. What muscle is dysfunctional in this case?

- A. *M. temporalis*
- B. *M. pterigoideus medialis*
- C. *M. pterigoideus lateralis*
- D. *M. zygomaticus major*
- E. *M. zygomaticus minor*

97. Biochemical testing of the patient's blood and urine revealed hypercalcemia, hypophosphatemia, and hyperphosphaturia. What hormone is being overproduced in this case, causing this condition in the patient?

- A. Parathormone
- B. Thyroxine
- C. Vasopressin
- D. Oxytocin
- E. Corticotropin

98. At the dental office, a patient was diagnosed with caries. What is the main cause of this pathology?

- A. *Streptococcus mutans*
- B. Avitaminosis
- C. Masticatory load
- D. Malnutrition
- E. Gastric disease

99. A 45-year-old patient, who was prescribed complex therapy by a dentist due to recurrent aphthous stomatitis, developed an imbalance of the oral cavity microbiota with an increased amount of yeast fungi. What drug should be prescribed to this patient?

- A. Fluconazole
- B. Acyclovir
- C. Rifampicin
- D. Nifuroxazide
- E. Gentamicin

100. A 30-year-old woman has a distinct tumor-like formation in the area of her right lower premolars. This formation causes jaw deformity and is associated with destruction of a large part of the bone. On section, the tumor is red with whitish spots and cysts. Microscopy shows that the parenchyma of the tumor contains small mononuclear cells (osteoblasts) with giant multinucleated cells (osteoclasts) located among them. In some places, small bone trabeculae are visible. What is the most likely diagnosis in this case?

- A. Giant-cell tumor of bone
- B. Ameloblastoma
- C. Osteoid osteoma
- D. Osteosarcoma
- E. Osteoma

101. A 60-year-old patient presents with high risk of pulmonary embolism due to a severe case of varicose veins in the legs. For prevention, the patient was prescribed an indirect anticoagulant that is a coumarin derivative and a vitamin K antagonist. Name this drug.

- A. Warfarin
- B. Phenylone (Phenindione)
- C. Nadroparin
- D. Ticlopidine
- E. Streptokinase

102. In an experiment, a test animal had a part of its brain destroyed, which caused the animal to change from a homeothermic to a poikilothermic state. What part of the brain was destroyed in this case?

- A. Hypothalamus
- B. Pituitary
- C. Pineal gland
- D. Medulla oblongata
- E. Mesencephalon

103. What changes in the ECG indicate tachycardia?

- A. Shortening of the RR interval
- B. Lengthening of the RR interval
- C. Lengthening of the QT segment
- D. Lengthening of the QRS complex
- E. Shortening of the PQ interval

104. What parasite has a mollusk as an intermediate host?

- A. *Fasciola hepatica*
- B. Echinococcus
- C. *Diphyllobothrium latum*
- D. Giardia
- E. Trichinella

105. A patient was immunized with a recombinant vaccine against hepatitis B. What serological marker was detected in the patient's blood serum?

- A. Anti-HBs IgG
- B. Viral DNA
- C. HBs antigen
- D. Anti-HBc IgM
- E. HBe antigen

106. An infectious agent was isolated from a patient with pneumonia of unknown etiology. This agent cannot reproduce on nutrient media and does not have a formed nucleus, but contains two types of nucleic acids (DNA and RNA). In this case, to which group of microorganisms does the causative agent of the disease belong?

- A. Chlamydia
- B. Mycoplasmas
- C. Protozoa
- D. Viruses
- E. Prions

107. What receptors trigger the protective reflex of sneezing, when stimulated?

- A. Irritant receptors
- B. Pulmonary stretch receptors
- C. Proprioceptors
- D. Nociceptors
- E. J-receptors

108. After mushroom poisoning, a person developed yellow coloring of the skin and sclera and dark-colored urine. What pigment causes urine discoloration in patients with hemolytic jaundice?

- A. Stercobilin
- B. Bilirubin monoglucuronide
- C. Unconjugated bilirubin
- D. Verdoglobin
- E. Biliverdin

109. A patient with acute myocarditis developed clinical signs of cardiogenic shock. What pathogenetic mechanism is leading in the development of shock?

- A. Impaired pumping function of the heart
- B. Decreased vascular tone
- C. Decreased diastolic blood inflow to the heart
- D. Increased vascular tone
- E. Blood deposition in the veins

110. During a visit to a doctor, examination of the patient's larynx detected incomplete closure of the vocal folds during phonation, with the vocal folds becoming oval-shaped in the process. What laryngeal muscle is dysfunctional in the patient?

- A. *M. vocalis*
- B. *M. cricoarytenoideus lateralis*
- C. *M. cricoarytenoideus posterior*
- D. *M. thyroarytenoideus*
- E. *M. arytenoideus transversus*

111. In a patient with essential hypertension, a doctor observes the inability to pronounce words clearly due to a hemorrhage in the area of the left inferior frontal gyrus. In this case, the hemorrhage has occurred in the basin of which cerebral artery?

- A. *A. cerebri media*
- B. *A. cerebri anterior*
- C. *A. cerebri posterior*
- D. *A. communicans posterior*
- E. *A. ophthalmica*

112. A patient came to a doctor with complaints of suppuration in the soft tissues of the orbit. Through what anatomical formation can the purulent process spread into the middle cranial fossa?

- A. Superior orbital fissure
- B. Zygomatico-orbital foramen
- C. Posterior ethmoidal foramen
- D. Inferior orbital fissure
- E. Anterior ethmoidal foramen

113. A patient was administered protein preparations that caused a severe allergic reaction with Quincke's edema. The development of the allergic reaction is associated with the formation of a certain substance. What substance is it?

- A. Histamine
- B. Acetylcholine
- C. Melatonin
- D. Dopamine
- E. Adrenaline

114. Excretion of a certain marker amino acid with urine reflects the rate of catabolism of collagen structures of connective tissue. What marker amino acid must be measured in biological substrates to assess the collagen metabolism?

- A. Oxyproline
- B. Histidine
- C. Phenylalanine
- D. Threonine
- E. Methionine

115. A 60-year-old patient with non-insulin-dependent diabetes mellitus was prescribed a hypoglycemic drug that causes its effect by inhibiting gluconeogenesis and glycogenolysis, increasing the sensitivity of muscles to insulin, improving glucose uptake by peripheral tissues, and improving glucose utilization. What drug is it?

- A. Metformin
- B. Sitagliptin
- C. Insulin
- D. Prednisolone
- E. Epinephrine hydrochloride

116. A child developed hemolytic jaundice. In this case, an increase in a certain blood value would be the most significant and decisive in making the diagnosis. What blood value is it?

- A. Indirect bilirubin
- B. Direct bilirubin
- C. Urobilinogen
- D. Stercobilinogen
- E. Mesobilinogen

117. A 40-year-old woman came to a dental surgeon with complaints of a neoplasm on the skin of her face. The neoplasm has been rapidly increasing in size over the course of the last 5 months. Objectively, the neoplasm is 0.7 cm in diameter, without clear boundaries, with uneven edges, surface, and pigmentation. Microscopy after the surgery detected the following: in the epidermis, the papillary dermis contains large cells with the nuclei of varying shape, a moderate number of mitoses, including the pathological ones, pronounced nucleoli, and a varying amount of brown pigment in the cytoplasm (negative Perls' reaction). What is the most likely diagnosis in this case?

- A. Melanoma
- B. Melanocytic nevus
- C. Seborrheic keratosis
- D. Actinic lentigo
- E. Fibrous histiocytoma

118. For the diagnostics of generalized herpetic infection, blood serum was studied to detect specific antibodies of a certain class. What class of antibodies indicates the acute stage of a viral infection?

- A. *IgM*
- B. *IgA*
- C. *IgG*
- D. *IgE*
- E. *IgD*

119. Histology of a biopsy material obtained from the cervix of a 27-year-old woman detected the following: inflammatory infiltration with involvement of the walls of small vessels (veins and arteries), the presence of lymphocytes, plasma cells, epithelioid cells, and an area of tissue sclerosis and hyalinosis in the infiltrate. What disease corresponds with this histological presentation?

120. The thyroid gland of a 39-year-old woman is diffusely and symmetrically enlarged. Histology revealed mononuclear inflammatory infiltrations in the parenchyma of the gland. These infiltrations contain small lymphocytes, plasma cells, and well-developed germinal centers. Thyroid follicles are atrophied and lined with epithelial cells that can be characterized by a large amount of eosinophilic and granular cytoplasm — Hurthle cells or oxyphil cells. What is the most likely diagnosis in this case?

- A. Syphilis
- B. Leukoplakia
- C. Dysplasia
- D. Cervical erosion
- E. Papilloma

121. A 42-year-old patient has hepatosplenomegaly and asymmetric enlargement of lymph nodes in the neck area (painless, medium density). Histology of a lymph node revealed giant cells with a large multilobed nucleus, textured nucleoli, and wide eosinophilic cytoplasm (Reed-Sternberg cells), as well as cells with two "mirrored" nuclei, each of which contains an acidophilic nucleolus surrounded by a clear zone ("owl's eye"). What is the most likely diagnosis in this case?

- A. Autoimmune (Hashimoto) thyroiditis
- B. De Quervain (subacute) thyroiditis
- C. Follicular adenoma
- D. Riedel (chronic fibrosing) thyroiditis
- E. Graves disease

122. Which one of the listed drugs is a monoamine reuptake inhibitor?

- A. Lymphogranulomatosis
- B. Acute lymphoblastic leukemia
- C. Chronic lymphocytic leukemia
- D. Burkitt lymphoma
- E. Non-Hodgkin lymphoma

- A. Amitriptyline
- B. Diazepam
- C. Droperidol
- D. Amiodarone
- E. Furosemide

123. A doctor prescribed a drug that inhibits the proton pump function (H^+/K^+ -ATPase) to a patient with peptic ulcer disease of the stomach. What drug has such mechanism of action?

- A. Omeprazole
- B. De-nol (bismuth subcitrate)
- C. Pirenzepine
- D. Pancreatin
- E. Famotidine

124. What effect will decreased levels of Ca^{2+} in blood plasma have on the duration of coagulation hemostasis?

- A. The duration of hemostasis will increase
- B. The duration of hemostasis will decrease
- C. The duration of hemostasis will remain unchanged
- D. Ca^{2+} ions have no effect on the duration of hemostasis
- E. —

125. What hormone increases sodium reabsorption?

- A. Aldosterone
- B. Adrenaline
- C. Antidiuretic hormone
- D. Natriuretic hormone
- E. Parathormone

126. What main changes in the peripheral blood are characteristic of the second stage of acute radiation sickness?

- A. Lymphopenia
- B. Leukocytosis
- C. Lymphocytosis
- D. Monocytosis
- E. Erythrocytosis

127. A 49-year-old man, who had been a heavy drinker for a long time, has been hospitalized with complaints of fatigability, pain in the right hypochondrium, loss of appetite, and itching. Examination detected the following: reduced levels of total blood protein, hypoalbuminemia, increased levels of alkaline phosphatase, an enlarged liver, and generalized edema. What is the cause of the edema development in this patient?

- A. Reduced oncotic blood pressure
- B. Increased hydrostatic blood pressure
- C. Increased permeability of the capillary wall
- D. Disturbed neuroregulation of the water exchange
- E. Disturbed lymphatic efflux

128. Examination of a patient with a traumatic brain injury revealed a loss of tactile sensitivity. What part of the cerebral cortex is damaged in this case?

- A. Postcentral gyrus
- B. Occipital lobe of the cerebral cortex
- C. Parietal lobe of the cerebral cortex
- D. Precentral gyrus
- E. Frontal lobe of the cerebral cortex

129. Chest X-ray of a 26-year-old woman allowed diagnosis of her with bilateral lymphadenopathy and changes characteristic of a "honeycomb lung". In the respiratory part of the lungs, histology of the biopsy material detected numerous epithelioid cell granulomas with isolated Langhans giant cells and lymphocytes and without signs of caseous necrosis. What is the most likely disease in this case?

- A. Sarcoidosis
- B. Tuberculosis
- C. Aspergillosis
- D. Histoplasmosis
- E. Coccidiosis

130. A patient has been undergoing treatment for gastroesophageal reflux disease for a long time. A biopsy material was obtained from the esophageal mucosa above the gastroesophageal junction. Histology of the material revealed that stratified squamous epithelium of the mucosa had areas lined with cylindrical (columnar) epithelium that contained numerous goblet cells. What pathological condition is observed in the patient?

- A. Barrett esophagus
- B. Herpes esophagitis
- C. Esophageal adenocarcinoma
- D. Esophageal achalasia
- E. Esophageal squamous cell carcinoma

131. A 22-year-old woman came to a gynecologist with complaints of irregular menstrual cycles, hemorrhagic discharge from the vagina, and pain in the lower abdomen. After a complex of laboratory and instrumental studies, the woman underwent uterine curettage. Histology of the obtained material detected acutely enlarged, cystically changed, edematous chorionic villi with proliferation of

trophoblast cells and fragments of decidual tissue. What pathological process is observed in the patient?

- A. Hydatidiform mole
- B. Endometrial polyp
- C. Chorioepithelioma
- D. Endometrial carcinoma
- E. Endometrial hyperplasia

132. A patient came to a dentist with complaints of chronic local inflammatory processes observed in the oral mucosa. Examination detected a sharp decrease in secretory immunoglobulin levels in the patient's saliva. What cells are dysfunctional in this case?

- A. Plasma cells
- B. Mucosal epithelial cells
- C. Macrophages
- D. Serocytes
- E. Mucocytes

133. What mucolytic expectorant has an antioxidant, pneumoprotective, cardioprotective, and detoxifying effect and is used in cases of paracetamol poisoning?

- A. Acetylcysteine
- B. Bromhexine
- C. Ambroxol
- D. Codeine
- E. Glauicine

134. A doctor has diagnosed the patient with damage to the hypoglossal nucleus. What part of the brain is affected by the pathological process in this case?

- A. Medulla oblongata
- B. Pons
- C. Cerebellum
- D. Mesencephalon
- E. Diencephalon

135. A patient complains of headache and difficulty breathing. X-ray allowed diagnosing the patient with frontitis (inflammation of the frontal sinus). Into what nasal meatus will purulent discharge spread in this case?

- A. Middle nasal meatus
- B. Inferior nasal meatus
- C. Superior nasal meatus
- D. Common nasal meatus
- E. Above the superior nasal concha

136. When treating the teeth, a dentist inserts a cotton swab into the space between the cheek and the alveolar process of the upper jaw, closing the duct outlet of a certain gland. What gland is it?

- A. Parotid
- B. Labial
- C. Submandibular
- D. Sublingual
- E. Lingual

137. Electron microscopy of a specimen revealed a round vesicle formed by a biological membrane and filled with enzymes (matrix). A dense core can be detected in the center of the matrix. Name this organelle.

- A. Peroxisome
- B. Proteasome
- C. Ribosome
- D. Centrosome
- E. Microtubule

138. A 7-year-old boy developed pain and edema in the throat and a low-grade fever observed for two weeks. Examination revealed hepatosplenomegaly and enlarged lymph nodes. A virus of the *Herpesviridae* family that causes proliferation of B-lymphocytes was isolated from the patient's oropharynx. What virus has most likely caused the disease in this case?

- A. Epstein-Barr virus
- B. HIV
- C. Herpes simplex virus type 2
- D. Measles virus
- E. Coxsackievirus A

139. After a head injury, the patient developed paralysis of the mimic muscles on the right. Examination detected damage to the facial nerve in the area after its exit from the facial canal. What anatomical structure is located at the end of the facial nerve canal?

- A. Stylomastoid foramen
- B. Jugular foramen
- C. External acoustic pore
- D. Internal acoustic pore
- E. Mastoid canaliculus

140. A 20-year-old woman was hospitalized with a decrease in the volume of circulating blood and low systemic arterial pressure caused by blood loss. In the juxtaglomerular apparatus of the patient's kidneys, the secretion of a certain bioactive substance will increase in this case. What substance is it?

- A. Renin
- B. Angiotensin
- C. Aldosterone
- D. Vasopressin
- E. Adrenaline

141. A patient came to a family doctor with complaints of weakness, weight loss, and enlarged cervical lymph nodes. Microscopy of the biopsy material obtained from a lymph node shows giant multinucleated Reed-Sternberg cells, lymphocytes, plasma cells, histiocytes, eosinophils, and areas of necrosis and sclerosis. What disease can be characterized by the described changes?

- A. Lymphogranulomatosis (Hodgkin lymphoma)
- B. Lymphosarcoma
- C. Tuberculosis
- D. Sarcoidosis
- E. Lymphocytic leukemia

142. The following changes were observed in the ECG of a 30-year-old man: an area of abnormal contraction with missing P wave, deformed QRS complex, and negative T wave inverse to the QRS complex. What type of arrhythmia is observed in this case?

- A. Ventricular extrasystole
- B. Sinus arrhythmia
- C. Atrioventricular extrasystole
- D. Atrial extrasystole
- E. Paroxysmal tachycardia

143. What type of respiratory ventilatory insufficiency is characteristic of patients with pneumothorax?

- A. Restrictive
- B. Obstructive
- C. Mixed
- D. Disregulatory
- E. Pathological

144. Autopsy of the body of a 46-year-old woman with chronic heart failure revealed enlarged left ventricular chamber with thinned walls. Revision of the mitral valve area detected significant narrowing of the left atrioventricular orifice due to cicatricial changes at the level of the *annulus fibrosus cordis*. What heart defect is most likely observed in this case?

- A. Mitral valve stenosis
- B. Mitral valve insufficiency
- C. Mitral valve prolapse
- D. Coarctation of the ascending aorta
- E. Myogenic dilatation of the left ventricle

145. A 42-year-old patient with persistent spinal deformity ("beggar's posture") complains of spinal immobility in its cervical region. X-ray of the cervical region shows destruction of inter-articular cartilages of vertebrae C1–C5 and bony ankylosis of C2, C3, and C4. What disease can be characterized by the descri-

bed changes?

- A. Bekhterev disease
- B. Rheumatoid arthritis
- C. Osteochondrosis of the cervical spine
- D. Duchenne muscular dystrophy
- E. Becker muscular dystrophy

146. Autopsy of the body of a person, who died of secondary bacterial pneumonia, revealed pale yellow muscles with numerous calcinosis foci. Microscopy revealed dystrophic changes in the muscles, absence of striations, and reduced glycogen levels. Edema and inflammation are observed in the stroma. The cellular infiltrate is represented by lymphocytes, macrophages, and plasma cells. Sclerotic changes were detected in the heart, lungs, and liver. What is the most likely diagnosis in this case?

- A. Dermatomyositis (Wagner-Hepp-Unverricht disease)
- B. Myopathy
- C. Zenker's degeneration of muscles in typhoid fever
- D. Myositis
- E. Systemic scleroderma

147. A man complains of weight loss, rapid physical and mental fatigability, decreased appetite, arterial hypotension, and hyperpigmentation of the skin. Examination allowed diagnosing him with Addison's disease. What endocrine gland is hypofunctional in this case, causing this condition in the patient?

- A. Adrenal glands
- B. Thyroid gland
- C. Parathyroid gland
- D. Gonads
- E. Pituitary gland

148. Examination of the oral cavity of a patient with AIDS detected deposits of gray-white caseous inflammatory films on the oral mucosa. The films consist of microorganisms mixed with fibrinopurulent exudate. What pathological process has developed in the oral cavity of this patient?

- A. Oral candidiasis
- B. Gingivitis
- C. Leukoplakia
- D. Squamous cell carcinoma
- E. Ulcer

149. A man came to a doctor with complaints of excessive thirst (polydipsia) and frequent urination with a large amount of urine (polyuria). The patient's history states that 4 weeks ago he was diagnosed

with necrosis of the posterior lobe of the pituitary gland caused by a craniocerebral injury. What pathology is observed in the patient?

- A. Diabetes insipidus
- B. Diabetes mellitus
- C. Cushing disease
- D. Acromegaly
- E. Cushing syndrome

150. Furosemide was prescribed to a patient with chronic heart failure as a part of complex treatment. What group of drugs does it belong to?

- A. Diuretics
- B. Calcium channel blockers
- C. β -blockers
- D. α -blockers
- E. Potassium channel blockers