

1. An 11-year-old boy comes to the pediatric dentist with the chief complaint of <<not being able to close his left eye or smile>>. Examination reveals the disappearance of the nasolabial fold, the left eyebrow sagging, and partial inability to close the left eye. Which of the following nerves is most likely affected?

- a. Trigeminal nerve
- b. Glossopharyngeal nerve
- c. Accessory nerve
- d. Facial nerve**
- e. Hypoglossal nerve

2. Blood testing of a 35-year-old patient shows the following: Hb --- 58 g/L, erythrocytes --- $1.3 \cdot 10^{12}/L$, color index --- 1.3, leukocytes --- $2.8 \cdot 10^9/L$, platelets --- $1.1 \cdot 10^9/L$, reticulocytes --- 2%, ESR --- 35 mm/hour. Polysegmented neutrophils, Jolly bodies, Cabot rings, and megalocytes can be detected. What type of anemia is it?

- a. Hemolytic anemia
- b. B₁₂ and folate deficiency anemia**
- c. Hypoplastic anemia
- d. Iron deficiency anemia
- e. Posthemorrhagic anemia

3. Some diseases of the small intestine are associated with dysfunction of exocrinocytes with acidophilic granules (Paneth cells). Where are these cells located?

- a. On the lateral surfaces of the intestinal villi
- b. In the apical parts of the intestinal villi
- c. In the apical parts of the intestinal crypts
- d. At the crypt-villus junction
- e. At the bottom of the intestinal crypts**

4. Bacteriology of the stools of a person, who works as a chef at a restaurant and has no clinical manifestations of the disease, resulted in growth of small colonies with a metallic sheen on a bismuth sulfite agar. What microorganisms are likely in this case?

- a. Staphylococci
- b. Escherichia
- c. Streptococci
- d. Shigella
- e. Salmonella**

5. As a result of an injury, an area of the oral cavity was damaged. This area can be divided into the maxillary, intermediate, and mandibular zones. What part of the oral cavity is damaged?

- a. Tongue
- b. Soft palate
- c. Lip
- d. Cheek**
- e. Hard palate

6. During a selection for revaccination with the BCG vaccine, a schoolboy has undergone the Mantoux test that turned out to be negative. What does this test result indicate?

- a. Presence of cellular immunity to tuberculosis
- b. Absence of antitoxic immunity to tuberculosis
- c. Absence of cellular immunity to tuberculosis**
- d. Absence of humoral immunity to tuberculosis
- e. Presence of humoral immunity to tuberculosis

7. A 45-year-old woman with hypoparathyroidism came to a dentist. What renal function is likely to be impaired in this patient?

- a. Increase of prostaglandin synthesis
- b. Reduction of calcium filtration in the renal glomeruli
- c. Reduction of vitamin B6 synthesis

d. Reduction of calcium reabsorption in the distal tubules

e. Increase of urokinase synthesis

8. A 60-year-old patient presents with impaired perception of high-frequency sounds. What structures of the auditory analyzer are impaired in this case, causing such changes?

a. Cochlear basilar membrane near the oval window

b. Cochlear basilar membrane near the helicotrema

c. Eustachian tube

d. Tympanic membrane

e. Middle ear muscles

9. A 35-year-old woman is brought to the physician because of a 4-month history of progressive weakness of both lower limbs. She notes difficulty climbing stairs and complains of lethargy and loss of muscle bulk. Her diet consists primarily of <<polished>> rice. A diagnosis of dry beriberi is suspected. Deficiency of which of the following vitamins is most likely to be detected in her blood?

a. Vitamin B₁ (thiamine)

b. Vitamin C (ascorbic acid)

c. Vitamin B₆ (pyridoxine)

d. Vitamin B₃ (niacin)

e. Vitamin B₂ (riboflavin)

10. A patient with a malignant tumor has been prescribed a narcotic analgesic for pain relief. What is the mechanism of analgesic action of such drugs?

a. Inhibition of histaminergic receptors

b. Inhibition of serotonergic receptors

c. Activation of opiate receptors

d. Activation of D2 dopamine receptors

e. Inhibition of cholinergic receptors

11. A 43-year-old cattle farm worker is brought to the surgeon with fever, malaise, and inflamed lesions on his hands and arms. He reports that about 2 weeks before his presentation at the hospital he noticed small, painless, pruritic papules that quickly enlarged and developed a central vesicle. The vesicles developed into erosion and left painless necrotic ulcers with black, depressed eschar. Gram's staining of the ulcer reveals gram-positive spore-forming bacilli. Which of the following diseases is the most likely cause of these findings?

a. Plague

b. Chickenpox

c. Anthrax

d. Syphilis

e. Tularemia

12. An ophthalmologist suspects blennorrhea (gonococcal conjunctivitis) in a child with signs of suppurative keratoconjunctivitis. What laboratory diagnostics should be conducted to confirm the diagnosis?

a. Serum diagnostics and allergy test

b. Biological analysis and \\ phagodiagnosics

c. Biological analysis and allergy test

d. Microscopy and serum diagnostics

e. Microscopy and bacteriological \\ analysis

13. A man with infertility requested medical genetic counseling. One Barr body was detected in the nuclei of most of the cells in his buccal mucosal epithelium. What is the likely cause of this pathological condition?

a. Triple X syndrome

b. Triple Y syndrome

c. Down syndrome

d. Klinefelter syndrome

e. Turner syndrome

14. A 28-year-old female patient dies of progressive respiratory failure after she was diagnosed with comminuted fracture of the right hip. Prior to her death she developed severe hypoxemia, neurologic abnormalities, and petechial rash. At autopsy, examination of pulmonary microvasculature shows intraluminal orange sudanophilic droplets. Which of the following complications is the most likely cause of this patient's death?

- a. Tumor embolism
- b. Air embolism
- c. Thromboembolism
- d. Amniotic fluid embolism

e. Fat embolism

15. During physical and emotional strain, a person is less sensitive to pain. This phenomenon occurs due to activation of the:

a. Antinociceptive system

- b. Thyroid function
- c. Nociceptive system
- d. Parasympathetic system
- e. Adrenal function

16. A woman complains of painful chewing, especilly when she moves her lower jaw backwards. What muscles are affected?

- a. Lateral pterygoid muscles
- b. Posterior bundles of the temporal \ muscles
- c. Medial pterygoid muscles
- d. Masseter muscles
- e. Anterior bundles of the temporal \ muscles

17. Name the specific phase of action potential, characteristic of typical cardiomyocytes:

a. Slow repolarization (plateau)

- b. Systolic repolarization
- c. Slow diastolic repolarization
- d. Rapid systolic depolarization
- e. Rapid diastolic depolarization

18. A patient has a dysfunction of the parotid salivary gland. What nerve increases its secretion?

a. N. petrosus minor

- b. N. auricularis minor
- c. N. auricularis major
- d. N. petrosus major
- e. N. petrosus profundus

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

a. Adenohypophysis

- b. Thyroid gland
- c. Adrenal glands
- d. Pineal gland
- e. Neurohypophysis

20. Microscopic examination of the leftovers of the canned meat eaten by a patient with severe food toxicoinfection detected the following: gram-positive bacilli with subterminal staining defect and changed configuration, generally resembling a tennis racket. What causative agent was detected?

a. C) botulinum

- b. S. aureus
- c. P. vulgaris
- d. E) coli
- e. S. enteritidis

21. The patient's ability to perceive a bitter taste is disturbed. What lingual papillae are affected in

this case?

- a. Papillae filiformes
- b. Papillae conicae
- c. Papillae foliatae
- d. Papillae fungiformes
- e. Papillae vallatae**

22. Name the change in the nucleotide sequence of a gene that is associated with the rotation of a certain DNA segment by 180°.

- a. Translocation
- b. Inversion**
- c. Duplication
- d. Deletion
- e. Repair

23. A patient, who has overdosed on a narcotic substance, is unconscious and has hypothermia, hypotension, and persistent miosis. What aid would be most effective and ensure the patient's survival in this case?

- a. Aethimizolum (Methylamide)
- b. Omeprazole
- c. Naloxone**
- d. Mesaton (Phenylephrine)
- e. Nitrazepam

24. During the extraction of a carious tooth, the dental surgeon found a gray-pink soft-elastic nodule 1.3 cm in diameter in the area of the dental root. Microscopically, the nodule is represented by granulation tissue with lymphocytes, plasma and mast cells, macrophages, xanthoma cells, and fibroblasts. What pathological neoplasm can be suspected in this case?

- a. Granulating periodontitis
- b. Eosinophilic granuloma
- c. Simple granuloma**
- d. Cystogranuloma
- e. Epithelial granuloma

25. A dentist used a solution of potassium permanganate as an antiseptic. This preparation has a bactericidal effect because of:

- a. Atomic oxygen**
- b. Manganese oxide
- c. Potassium
- d. Potassium oxide
- e. Potassium hydroxide

26. A hospitalized person has severe headache, nuchal rigidity, recurrent vomiting, and increased sensitivity to light stimuli. The patient has been diagnosed with meningitis and referred for a spinal tap. Where is the needle inserted for a spinal tap?

- a. Between L5 vertebra and the base of the sacrum
- b. Between Th12 and L1 vertebrae
- c. Between L1 and L2 vertebrae
- d. Between Th11 and Th12 vertebrae
- e. Between L3 and L4 vertebrae**

27. Autopsy of the body of a 58-year-old man, who had been suffering from rheumatic heart disease and died of cardiopulmonary decompensation, revealed gray diffuse film- and fiber-shaped coating in his pericardium. What type of inflammation is characteristic of this pericarditis?

- a. Hemorrhagic
- b. Suppurative
- c. Croupous fibrinous**
- d. Diphtheritic fibrinous

e. Serous

28. The patient's leukogram is as follows: leukocytes --- $14 \cdot 10^9/L$; myeloblasts --- 71%; promyelocytes, myelocytes, and metamyelocytes --- 0%; band neutrophils --- 6%, segmented neutrophils --- 13%; lymphocytes --- 7%, monocytes --- 3%. What is the patient's blood pathology?

- a. Chronic lymphocytic leukemia
- b. Lymphoblastic leukemia
- c. Chronic myeloid leukemia
- d. Neutrophilic leukocytosis

e. Myeloblastic leukemia

29. Serological diagnostics of influenza requires the measurement of an increase in the titer of antibodies to the pathogen in the patient's blood serum. How many times should the titer of antibodies in the paired serum samples increase for the result to be considered credible?

a. 2 times

b. 4 times or more

c. By half

d. ---

e. 3 times

30. A 25-year-old patient has been hospitalized with the diagnosis of syphilis. After testing, it was determined that the patient was hypersensitive to bicillin-5. What can be used as a replacement of this drug?

- a. Levomycetin (Chloramphenicol)
- b. Biseptol (Co-trimoxazole)
- c. Streptomycin
- d. Ampicillin

e. Tetracycline

31. A baby has microcephaly. Doctors believe that this condition is caused by the baby's mother taking actinomycin D during her pregnancy. What germ layers have been affected by this teratogen?

- a. All the germ layers
- b. Mesoderm
- c. Endoderm

d. Ectoderm

e. Endoderm and mesoderm

32. Replication is one of the reactions of matrix synthesis. What new molecule is formed from a DNA molecule in the process of replication?

- a. rRNA
- b. Pro-mRNA
- c. tRNA
- d. mRNA

e. DNA

33. Calcification of the intercellular substance of bone tissue is accompanied by the deposition of hydroxyapatite crystals along the collagen fibers. This process requires the presence of alkaline phosphatase in the intercellular matrix. Which of the following cells most likely produces this enzyme?

a. Chondroblast

b. Osteoblast

c. Osteocyte

d. Osteoclast

e. Chondrocyte

34. Examination of an oral cavity shows puffy gums, pus between teeth and gums, contact bleeding. The dentist suspects gum infection that damages the soft tissue and destroys the bone that supports the teeth. This pathology can cause teeth to loosen or lead to tooth loss. Which of the following is the most likely diagnosis?

a. Xerostomia

b. Periodontitis

c. Galvanosis

d. ---

e. Acute sialadenitis

35. A 49-year-old man comes to his physician with complaints of moderate headaches and profuse sweating. He mentions that his coworkers have made comments about his apparent increase in gloves and boots size. He says that since he joined his company 10 years ago he has changed the size of clothes at least 4 times. Physical examination shows hyperhidrosis, noticeable large pores, hypertrichosis, widely spaced teeth and prognathism. Which of the following is the most likely cause of this pathology?

a. Decreased secretion of glucocorticoids

b. ---

c. Excess secretion of growth hormone

d. Decreased secretion of insulin

e. Excess secretion of vasopressin

36. At autopsy, section of the right ovary shows a round lesion 2.5 cm in diameter with a clear serous fluid, surrounded by a smooth glistening membrane. Which of the following macroscopic lesions best represents the autopsy findings?

a. Cyst

b. Ulcer

c. Infiltrate

d. Nodule with central necrosis

e. Nodule

37. In histogenesis of bone tissue, two ways of its development are possible. What stages are not characteristic of membranous osteogenesis?

a. Replacement of reticulofibrous bone tissue with lamellar bone tissue

b. Formation of epiphyseal centers of ossification

c. Formation of osteogenic buds within mesenchyme

d. Osteoid stage

e. Formation of reticulofibrous bone

38. A 45-year-old female patient has neurosis with irritability, insomnia, amotivational anxiety. What tranquilizer will be able to eliminate all symptoms of the disease?

a. Levodopa

b. Paracetamol

c. Piracetam

d. Caffeine-sodium benzoate

e. Diazepam

39. A 56-year-old woman comes to the emergency department complaining of severe abdominal pain for the last several hours. The pain is cramp-like in nature, constant and has worsened over time. She gives a history of episodic right upper abdominal pain for the past few months, mostly after consuming fatty foods, radiating to the tip of the scapula. Ultrasound of the gallbladder shows hyperdense structures with an acoustic shadow (gallstones) and a thickened wall. Which of the following processes is most likely disturbed in presence of the stone in the gallbladder?

a. Hydrochloric acid (HCl) secretion in stomach

b. Emulsification of lipids

c. Inhibition of saliva secretion

d. Carbohydrates digestion to monosaccharides

e. Proteins digestion to amino acids

40. A 50-year-old patient suddenly developed headache, dizziness, and nausea. Blood pressure --- 220/110 mm Hg. During the intravenous administration of a 0.1% hygronium solution (treprium iodide), the patient's condition improved. What is the mechanism of action of this drug?

a. Angiotensin-converting enzyme blockade

- b. Activation of alpha_2-adrenoceptors
- c. Blockade of beta_1-adrenoceptors
- d. Blockade of ganglionic nicotinic receptors**
- e. Blockade of Ca^{++} channels

41. During an accident on a nuclear submarine, a conscript soldier received a radiation dose of 5 Gy. He complains of headache, nausea, and dizziness. What changes in the leukocyte count can be expected after such irradiation?

- a. Agranulocytosis
- b. Lymphocytosis
- c. Leukopenia
- d. Neutrophilic leukocytosis
- e. Anemia

42. The liquidator of the consequences of the accident at the Chornobyl nuclear power plant received an ionizing radiation dose of 6 Gray. What changes in the leukocyte formula can be expected in this patient in 10 days?

- a. Leukocytosis with lymphocytopenia
- b. Lymphocytosis
- c. Eosinophilia
- d. Agranulocytosis
- e. Basophilia

43. To test teeth sensitivity, they are sprayed with cold or hot water. What structure of cerebral cortex provides subjective estimation of this thermal test?

- a. Middle frontal gyrus
- b. Posterior central gyrus
- c. First temporal convolution
- d. Precentral gyrus
- e. Central fissure

44. A 58-year-old man presents with the clinical picture of acute pancreatitis. This diagnosis can be confirmed by high levels of a certain substance in the patient's urine. Name this substance:

- a. Urea
- b. Residual nitrogen
- c. Amylase
- d. Albumin
- e. Uric acid

45. A 25-year old woman is admitted to the hospital because of a 6-week history of double vision and difficulty to talk after prolonged speaking. Her husband reports fluctuating droopy eyelids in the morning and evening. An immunologic assay detects the presence of circulating autoantibodies against the certain receptors at the neuromuscular junction. Disturbed binding of which of the following neurotransmitters is the most likely cause of this patient's symptoms?

- a. γ -aminobutyric acid (GABA)
- b. Epinephrine
- c. Dopamine
- d. Serotonin
- e. Acetylcholine

46. Histologic examination of an eye specimen shows multilayer structure. The outermost layer is represented by special pigment epithelium, which is composed of cuboidal melanin-containing cells that absorb light. The photoreceptor layer contains photosensitive outer segments of rods and cones. Which of the following eye structures is mentioned?

- a. Ciliary body
- b. Iris
- c. Choroid
- d. Retina

e. Sclera

47. What infectious-allergic disease is associated with the development of bilateral diffuse or focal non-purulent inflammation of the glomerular apparatus of the kidneys with characteristic renal and extrarenal symptoms?

- a. Nephrolithiasis
- b. Polycystic kidney disease
- c. Nephrosclerosis
- d. Glomerulonephritis
- e. Pyelonephritis

48. Calcification of dental tissues is significantly influenced by osteocalcin protein which has an ability to bind calcium ions due to the presence of the following modified amino acid residues in the polypeptide chain:

- a. γ -carbon glutamine
- b. Carboxy asparagine
- c. γ -aminobutyric
- d. δ -aminopropionic
- e. Alanine

49. A baby has a delay in eruption of the first teeth. What vitamin is deficient in this baby?

- a. K
- b. PP
- c. A
- d. E
- e. D_{12}

50. A patient was diagnosed with acute glomerulonephritis. What substance in the urine indicates a damage to the basement membrane of the renal glomerular capillaries in case of this pathology?

- a. Protein
- b. Fructose
- c. Indican
- d. 17-ketosteroids
- e. Creatine

51. A 34-year-old woman goes into labor at 38 weeks. After several hours of labor a male infant is born with fever, hydrocephalus, hepatosplenomegaly, jaundice, bilateral chorioretinitis and cerebral calcifications. Which of the following protozoan infections is the most likely cause of the infant's condition?

- a. Giardiasis
- b. Amebiasis
- c. Toxoplasmosis
- d. Balantidiasis
- e. Trichomoniasis

52. A patient complains of an extremely runny nose and lost sense of smell. Where in the nasal cavity are located the receptors of the olfactory analyzer?

- a. Choanae
- b. Common nasal meatus
- c. Inferior nasal meatus
- d. Superior nasal meatus
- e. Middle nasal meatus

53. A 37-year-old male was admitted to a hospital complaining of abdominal pain, difficulty in swallowing and breathing, constipation, and nausea. He developed respiratory failure and required endotracheal intubation and ventilation. Two days before, the patient consumed dried salted fish bought from an artisanal producer. Laboratory investigation for infectious pathogen was performed using Kitt-Tarozzi's method. Observation under a bright field microscopy revealed the presence of typical microorganisms with <<tennis racket>> appearance. Which of the following is the most likely

diagnosis?

- a. Nontyphoidal Salmonella infection
- b. Shigella infection
- c. Botulism
- d. Typhoid fever
- e. Cholera

54. Hyposalivation, observed in sialolithiasis, and both acute and chronic inflammations of the salivary glands, causes the development of:

- a. Fluorosis
- b. Gingivitis
- c. Pulpitis
- d. Caries
- e. Stomatitis

55. A 10-day-old baby has undergone a surgery for cleft upper lip (<<hare lip>>). A split upper lip is caused by:

- a. A non-union of the tori palatini on the maxillary processes of the first branchial arch
- b. A non-union of the third branchial arch
- c. A non-union of the second branchial arch
- d. A non-union of the frontal and maxillary processes of the first branchial arch
- e. A non-union of the maxillary and mandibular processes of the first branchial arch

56. For caries prevention, dentists recommend limiting the intake of simple carbohydrates. What is the role of a cariogenic diet in the pathogenesis of defects of hard dental tissues?

- a. Decrease of pH in the oral cavity
- b. Formation of chelating substances
- c. Disorders of calcium and phosphorus metabolism
- d. Activation of remineralization process
- e. Saturation of dental enamel with fluorine

57. All of the teeth in the mouth together are referred to as the dentition. Humans have two dentitions throughout life: one during childhood, called the primary dentition, and one that will hopefully last throughout adulthood, called the permanent (secondary) dentition. The first permanent molars usually begin their eruption by/at:

- a. Twelve months of age
- b. Four to five years of age
- c. Six to seven years of age
- d. Birth
- e. ---

58. A patient has a long history of dental caries. The pulp of the affected tooth started to resemble a gray-black mass with a putrid odor. Microscopically, it is unstructured and contains microbes. What pathological process has developed in the dental pulp in this case?

- a. Pulp gangrene
- b. Fibrous pulpitis
- c. Purulent pulpitis
- d. Serous pulpitis
- e. Granulating pulpitis

59. A patient developed hypersalivation during dental manipulations. What group of medicines reduces this phenomenon?

- a. Cholinergic antagonists
- b. Adrenergic agonists
- c. Cholinergic agonists
- d. Adrenergic antagonists
- e. Astringents

60. What is caused by an absolute deficiency of vitamin K in the body?

- a. Hypercoagulation
- b. Disturbed platelet adhesion
- c. ---
- d. Hypocoagulation
- e. Intestinal dysbiosis

61. There is a 7-year-old child with complains of cough, lacrimation, rhinitis, skin rash, photophobia and three-day-long fever as high as 38°C) Physical examination has revealed the following: conjunctivitis; bright red maculopapular rash covering the skin of face, neck and torso; hyperemic pharynx; serous purulent secretions from the nose; dry rales in the lungs. What is the most probable diagnosis?

- a. Measles
- b. Adenovirus infection
- c. Scarlet fever
- d. Rubella
- e. Chicken pox

62. The patient's blood levels of calcium ions sharply dropped. It will result in increased secretion of a certain hormone. Name this hormone.

- a. Somatotropin
- b. Parathyroid hormone
- c. Aldosterone
- d. Thyrocalcitonin
- e. Vasopressin

63. A 60-year-old man with diabetes mellitus is prescribed insulin. What type of pharmacological therapy is it?

- a. Pathogenetic
- b. Preventive
- c. Substitution
- d. Etiotropic
- e. Symptomatic

64. Ribosomes are the organelles that bind amino acid residues into a polypeptide chain. The number of ribosomes in the cells of different organs varies and depends on the function of the organ. What organ has the highest ribosome count in its cells?

- a. Secretory cells of the pancreas
- b. Epithelium of the small intestine
- c. Outermost layer of epidermis
- d. Urinary bladder
- e. Epithelium of the renal tubules

65. A 10-year-old boy is brought to the physician by his parents because of fever, cough, and fatigue. He has been admitted to the hospital five times because of pneumonia. Attempts to induce immunity using the pneumococcal vaccine have failed. The first hospitalization was at the age of 12 months. Laboratory findings show marked reduction in all classes and subclasses of serum immunoglobulins. Which of the following immune cells is most likely to be reduced in the peripheral blood of this patient?

- a. NK-cells
- b. Neutrophils
- c. T-cells
- d. B-cells
- e. Macrophages

66. A 52-year-old woman came to a neurologist with complaints of the loss of sensitivity in the skin of the right half of her face in the area of the lower eyelid, nasal bridge, and upper lip. What nerve branch is damaged in this case?

- a. Ophthalmic division of the trigeminal nerve

- b. Greater petrosal nerve, a branch of the facial nerve
- c. Chorda tympani, a branch of the facial nerve
- d. Mandibular division of the trigeminal nerve
- e. Maxillary division of the trigeminal nerve

67. A patient diagnosed with tuberculosis developed red coloring of urine, saliva, and tear fluid after starting the treatment of this disease. Red spots appeared on the patient's underwear. What drug could have caused these phenomena?

- a. Benzylpenicillin sodium salt
- b. Rifampicin
- c. Iodine alcohol solution
- d. Ciprofloxacin
- e. Isoniazid

68. A 40-year-old male comes to the physician because of recurrent painful flares and swelling of the metatarsal-phalangeal joint of the great toe. Laboratory study of urine sample shows extremely low pH and pink discoloration. Which of the following metabolic intermediates is the most likely cause of changes in this patient's urine?

- a. Ammonia
- b. Tricalcium phosphate
- c. Magnesium sulfate
- d. Uric acid
- e. Chloride