

I. Read the text and answer 10 questions to it.

Pulpitis

Pulpitis is an inflammation of the dental pulp. Anatomical and physiological properties of the deciduous teeth pulp to a certain extent predetermine the features of the clinical course of pulpitis in children.

The pulp of tooth outwardly resembles its anatomical shape and is divided into coronal and root. In multi-rooted teeth, there is a pronounced border between them. The pulp is a loose fibrous tissue, consisting of intercellular base with fibers, cells, blood vessels and nerves included in it.

The pulp of deciduous teeth differs from the permanent teeth pulp in terms of anatomophysiological features. The pulp chamber of deciduous teeth is much larger. Histologically, the pulp of deciduous teeth practically does not differ from the permanent teeth pulp. It develops from the dental papilla and in its structure resembles embryonic tissue, which quickly differentiates in the direction of the connective tissue. The pulp of the formed tooth does not have mesenchyme. The intercellular substance contains a large number of collagen fibrils and does not have elastic fibers. The cellular composition of the deciduous teeth pulp is characterized by the presence of poorly differentiated cellular elements.

The pulp composition includes such cellular elements as preodontoblasts, odontoblasts (cells with high secretory activity, their processes perform a transport function), fibroblasts – stellate, spindle-shaped, round and histiocytes, adventitial, etc. The coronal pulp under the microscope differs from the root pulp. If in the former the cellular components prevail over the argyrophilic and collagen fibers, in the latter the opposite relationship is observed.

The most important role in the development of pulpitis is played by infectious factor, when a carious cavity is most often the site of infection entry. Rarely, infectious agent enters the pulp through the bloodstream. Retrograde spread of infection through the apical foramen is extremely rare in children.

Pulpitis can be caused by mechanical trauma, for example, on the background of the dental crown fracture with the damage to the pulp chamber.

Long-term thermal and chemical irritation can also cause the inflammatory process in the pulp: when amalgam filling is applied without liner or when using silicone and acrylate materials without liner.

1. Inflammation of the dental pulp is called pulpitis.

- A. True
- B. False
- C. Not given
- D. —
- E. —

- A. False
- B. True
- C. Not given
- D. —
- E. —

2. The pulp consists of odontocytes and fibroblasts.

3. Infections most often enter the pulp through the carious cavity.

- A.** True
- B.** False
- C.** Not given
- D.** —
- E.** —

4. In deciduous teeth the pulp chamber is larger than in permanent teeth.

- A.** True
- B.** False
- C.** Not given
- D.** —
- E.** —

5. Choose the correct statement.

- A.** Infectious agent seldom enters the pulp through the bloodstream
- B.** Infectious agent often enters the pulp through the bloodstream
- C.** Infectious agent never enters the pulp through the bloodstream
- D.** Infectious agent usually enters the pulp through the bloodstream
- E.** —

6. Choose the correct statement.

- A.** There is no mesenchyme in the formed teeth
- B.** There is mesenchyme in the formed teeth
- C.** Mesenchyme is present only in the crown of the tooth
- D.** Mesenchyme is present only in the root of the tooth
- E.** —

7. Choose the correct statement.

- A.** Pulpitis can occur due to mechanical, chemical or thermal damage
- B.** Pulpitis can occur due to mechanical damage
- C.** Pulpitis can occur due to chemical damage
- D.** Pulpitis can occur due to thermal damage
- E.** —

8. How is the coronal pulp differs

from the root pulp?

- A.** In the coronal pulp there are more cellular components than argyrophilic and collagen fibers
- B.** In the coronal pulp there are more argyrophilic and collagen fibers than cellular components
- C.** In the root pulp there are more cellular components than argyrophilic and collagen fibers
- D.** In the root pulp there are more argyrophilic and collagen fibers than cellular components
- E.** —

9. What is included in the structure of the pulp?

- A.** Intercellular base with fibers, cells, blood vessels and nerves
- B.** Cells, blood vessels and nerves
- C.** Intercellular base, cells and blood vessels
- D.** Intercellular base, cells and nerves
- E.** —

10. What is the feature of multi-rooted teeth?

- A.** There is a pronounced border between the coronal and root parts
- B.** The pulp of one root may be stronger than the pulp of other roots
- C.** Some components may be missing in the structure of the pulp of one root
- D.** The pronounced border between the coronal and root parts is absent
- E.** —

11. In one cell organelle take place the construction of a protein molecule and the assembly of protein molecules with carbohydrates and fats. Name the organelle.

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

12. In the prenatal period of development Botallo's duct connects the following organs:

- A. Pulmonary trunk and aorta
- B. Right and left ventricle
- C. Aorta and inferior vena cava
- D. Right and left atrium
- E. Pulmonary trunk and superior vena cava

13. Indirect calorimetry shows that the basal metabolic rate of a person is 40% lower than the norm. What endocrine gland does not function properly in this person, causing this condition?

- A. Thyroid gland
- B. Thymus
- C. Pancreas
- D. Pineal gland
- E. Adrenal glands

14. Local anesthetics are used in dental practice. They block the following ion channels:

- A. Sodium channels
- B. Potassium channels
- C. Rapid calcium channels
- D. Slow calcium channel
- E. Chloride channels

15. 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

16. A patient, 38 years old, who had hepatitis and continued to administer alcohol, developed the signs of cirrhosis of the liver with ascites and edema of the lower extremities. Due to which changes in the blood, edema developed in this case?

- A. Hypoalbuminemia
- B. Hypoglobulinemia
- C. Hypcholesterolemia
- D. Hypokalemia
- E. Hypoglycemia

17. A patient with cholelithiasis produces colorless fatty feces because of obturation of the bile ducts. Steatorrhea is caused by the absence of a certain bile component. Name this component:

- A. Bile acids
- B. Cholesterol
- C. Bile pigments
- D. Fatty acids
- E. Alkaline phosphatase

18. An unconscious man with carbon monoxide poisoning was brought to the hospital by an ambulance. In his case, hypoxia is caused by accumulation of the following in the blood:

- A. Carboxyhemoglobin
- B. Oxyhemoglobin
- C. Sulfhemoglobin
- D. Methemoglobin
- E. Carbhemoalbumin

19. In the experiment, a significant retention of potassium in the body was observed in an adrenalectomized animal, which caused hyperkalemia. What is the most likely heart rhythm disorder in such an animal?

- A. Sinus bradycardia
- B. Sinus tachycardia
- C. Atrial extrasystole
- D. Ventricular extrasystole
- E. Atrio-ventricular blockade

20. During the microbiological examination of a kidney biopsy, foci were found, in the centre of which there are granular eosinophilic masses surrounded by an infiltrate of lymphocytes, epithelioid cells and single Pirogov-Langhans cells. What pathological process is most likely observed in this case?

- A. Granulomatous inflammation
- B. Coagulation necrosis
- C. Caseous necrosis
- D. Productive inflammation
- E. Proliferation and differentiation of macrophages

21. An inoculation of pus, obtained from a furuncle, revealed spheric microorganisms arranged in "grape clusters". What microbes were detected?

- A. Staphylococci
- B. Diplococci
- C. Micrococci
- D. Streptococci
- E. Tetracocci

22. A patient 55 years old, on the 4th day of his treatment with indomethacin, developed gastric bleeding as a result of ulceration of the gastric mucosa. With what the ulcerogenic effect of the drug is associated?

- A. Reduction in the formation of prostaglandin
- B. Reduction in the formation of prostacyclin
- C. Reduction in the formation of leukotriens
- D. Reduction in the formation of cyclic endoperoxides
- E. Reduction in the formation of tromboxane

23. After a brain trauma, a person developed impaired perception of visual information. What cortical region was damaged?

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

24. There were found 47 chromosomes in cultered skin fibroblastes, which were taken from the child with Down's syndrome. Determine the type of anomaly in this case.

- A. Trisomy 21
- B. Monosomy X
- C. Trisomy 13
- D. Trisomy 18
- E. Trisomy X

25. During allergic rhinitis (inflammation of the nasal mucosa) the number of basophils in the connective tissue of the mucosa increases, which is accompanied by a tissue edema. This phenomenon is associated with the following function of tissue basophils:

- A. Histamine synthesis
- B. Production of intercellular substance
- C. Phagocytosis
- D. Antibody formation
- E. Heat production

26. As a result of the injury, there was a rupture of the olfactory fibers that come out of the nasal cavity. Through which bone do these fibers pass?

- A. Ethmoid
- B. Sphenoid
- C. Upper jaw
- D. Lower nasal concha
- E. Nasal

27. A boy has blood group I ($I^0 I^0$), while his sister has blood group IV ($I^A I^B$). What blood groups do their parents have?

- A. II ($I^A I^0$) and III ($I^B I^0$)
- B. II ($I^A I^A$) and III ($I^B I^0$)
- C. I ($I^0 I^0$) and IV ($I^A I^B$)
- D. III ($I^B I^0$) and IV ($I^A I^B$)
- E. I ($I^0 I^0$) and III ($I^B I^0$)

28. After the surgery on thyroid gland a patient developed violation of the voice formation (the voice is quiet, hoarse). What nerve is damaged in this case?

- A. Recurrent laryngeal nerve
- B. Upper laryngeal nerve
- C. Bronchial branches
- D. Tracheal branches
- E. Throat branches

29. After neck surgery, the patient lost sensation on the front and side surfaces of the neck. Which branch of the cervical plexus was damaged during the surgery?

- A. Transverse cervical nerve
- B. Great auricular nerve
- C. Small occipital nerve
- D. Subclavian nerve
- E. Neck loop

30. What cellular elements are involved in the regeneration of bone tissue?

- A. Osteoblasts
- B. Chondroblasts
- C. Chondrocytes
- D. Osteocytes
- E. Fibroblasts

31. A dentist prescribed diclofenac sodium to a patient with arthritis

of the temporomandibular joint. What is the mechanism of action of this drug?

- A. Cyclooxygenase 2 inhibition
- B. Catalase inhibition
- C. Opioid receptor activation
- D. Opioid receptor blockade
- E. Phosphodiesterase activation

32. Aspirin blocks the synthesis of prostaglandins because it is an inhibitor of cyclooxygenase. Which fatty acid is not used for the synthesis of prostaglandins?

- A. Arachidonic
- B. Linoleic
- C. Linolenic
- D. Stearic
- E. Palmitoleic

33. What hormone has a marked anti-inflammatory, antiallergic, and immunosuppressive effect?

- A. Hydrocortisone
- B. Aldosterone
- C. Thyroxine
- D. Adrenaline
- E. Somatotropin

34. During the examination of the patient he was diagnosed with a high level of acetylcholine in the neuromuscular synapse. What enzyme controls the level of this mediator in this case?

- A. Cholinesterase
- B. Catecholamine transferase
- C. Monoamine oxidase
- D. GABA synthase
- E. Dopamine synthase

35. In case of hyperfunction of which endocrine gland, Basedow's (Grave's) disease develops?

- A. Thyroid
- B. Pangastric
- C. Parathyroid
- D. Adrenal
- E. Reproductive

36. A doctor prescribed to the patient with tuberculosis a semi-synthetic antibiotic, which has a bactericidal effect on tuberculosis mycobacteria by inhibiting RNA synthesis. This drug also turns saliva, sputum and tears in red colour. What drug did the doctor prescribe?

- A. Rifampicin
- B. Ftivazid
- C. Ethambutol
- D. Isoniazid
- E. Lomefloxacin

37. The patient came to the hospital with deep cut wound in the middle part of the back surface of the left shoulder. What muscle is damaged?

- A. *M. triceps brachii*
- B. *M. Anconeus*
- C. *M. Brachialis*
- D. *M. Deltoideus*
- E. *M. biceps brachii*

38. A 65-year-old patient had been treated for 3 days in the resuscitation unit for a cardiac pathology. Suddenly he developed ventricular fibrillation which turned out to be the immediate cause of death. Microscopy of the left ventricular myocardium revealed a large focus of cardiomyocyte karyolysis demarcated by the zone of hyperaemia. What cardiac pathology was the cause of death?

- A. Acute myocardial infarction
- B. Ischemic myocardial degeneration
- C. Acute myocarditis
- D. Diffuse cardiosclerosis
- E. Postinfarction cardiosclerosis

39. With the purpose of analgesia, to potentiate the narcotic analgesic, a benzodiazepine drug has been used. What drug has been used to potentiate analgesia?

- A. Diazepam
- B. Chlorprothixene
- C. Triftazin
- D. Carbamazepine
- E. Imizinum

40. A 35-year-old man had an acute onset of the disease. He developed temperature of 39°C, rhinitis, cough, and lacrimation. Examination shows swollen and hyperemic nasopharyngeal mucosa with profuse mucus discharge. What type of inflammation developed in the nasopharynx?

- A. Catarrhal inflammation
- B. Suppurative inflammation
- C. Serous inflammation
- D. Hemorrhagic inflammation
- E. Fibrinous inflammation

41. In the injury the mucous membrane of the organ is damaged, in which the maxillary, mandibular and intermediate zones are distinguished. What organ is it?

- A. Cheek
- B. Gums
- C. Hard palate
- D. Soft palate
- E. Lip

42. During the preventive examination of a 35-year-old man, a large amount of the culture of *S. mutans* was isolated from the material from the oral cavity. The development of which infectious disease can predict a dentist and carry out the necessary preventive measures?

- A. Caries
- B. Periodontitis
- C. Gingivae
- D. Haylit
- E. Stomatitis

43. The patient's tooth extraction was accompanied by severe bleeding, which could not be stopped for a long time. During the patient's examination the doctor found out that he had been taking cytostatic medicines for a long time. What pathology of blood coagulation system developed in the patient?

- A. Acquired trombocytopenia
- B. Hereditary trombocytopenia
- C. Insufficiency of the blood coagulation factor X
- D. Insufficiency of the blood coagulation factor VIII
- E. Insufficiency of the blood coagulation factor IX

44. A patient 62 years old for a long time was suffering from fibro-cavernous tuberculosis of the lungs. He died due to chronic renal failure. During the autopsy, the kidneys were found to be enlarged in size, dense, yellow-white in section, with a greasy sheen. Name the most probable process in the kidneys, which has caused the development of the renal failure?

- A. Secondary amyloidosis
- B. Primary amyloidosis
- C. Primary lipoidosis
- D. Secondary lipoidosis
- E. Chronic glomerulonephritis

45. A five-year-old boy was found to have a bulky mass in the right upper jaw, and enlarged cervical and subclavian lymph nodes. Biopsy result: the structure of the lymph nodes is erased, and there is a diffuse proliferation of small lymphocyte-like cells, among which there are large macrophages with

light cytoplasm, which together resemble a picture of a "starry sky". What disease can be suspected?

- A. Burkitt's lymphoma
- B. Hodgkin's lymphoma
- C. Sezary's disease
- D. Diffuse B-cell lymphoma
- E. Lymphoma from NK-cells

46. Long-term consumption of nitrites caused a mutation in the human body due to the deamination of nitrogenous bases in DNA. However, this mutation did not change the codon content and structure of the corresponding protein. What is the name of such a mutation?

- A. Silence mutation
- B. Missence mutation
- C. Nonsense mutation
- D. Splice mutation
- E. Inverse mutation

47. Which blood cells take part in protective reactions of the body to the foreign protein, contain a two-segment nucleus, azurophilic and acidophilic granules with a high content of basic and cationic proteins?

- A. Eosinophilic granulocytes
- B. Basophilic granulocytes
- C. Monocytes
- D. Platelets
- E. Lymphocytes

48. The patient complains of impaired taste sensitivity in the left front two-thirds of the tongue. A CT scan revealed a neoplasm that deforms *fissura petrotympanika* (the place where the branch of the facial nerve exits — *chorda tympani*). What effect on which salivary glands should be expected?

- A.** Parasympathetic on the left submandibular and sublingual
- B.** Sympathetic on the left submandibular and sublingual
- C.** Parasympathetic on the left parotid and sublingual
- D.** Parasympathetic on the left parotid and submandibular
- E.** Sympathetic on the left parotid and sublingual

49. During the appointment with the dentist a blood pressure of a woman, 65 years old, suddenly increased (180/120mm Hg.). The doctor gave the patient a few drops of calcium channel blockers sublingually, and within 5 minutes the blood pressure normalized. Name this drug.

- A.** Hifedipine
- B.** Nitroglycerin
- C.** Nebivolol
- D.** Diltiazem
- E.** Atenolol

50. The patient was prescribed a local anesthetic for tooth extraction, which is a substituted amine and reduces automatism and excitability of the myocardiocytes of the ventricles of the heart. Name this anesthetic.

- A.** Lidocaine
- B.** Novocaine
- C.** Novocainamide
- D.** Anesthesin
- E.** Paracetamol