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Necrosis and apoptosis. Infarction. Biological death.

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QUESTIONS

Choose one correct answer

1. At an autopsy performed on the 3rd day after the death of a patient with myocardial infarction, pronounced signs of autolysis in all organs were macroscopically revealed, which made it difficult to confirm the clinical diagnosis. In such a situation, for the differential diagnosis between necrosis and postmortem autolysis, you can use:

- a) karyolysis,
- b) plasmolysis,
- c) plasmolysis,
- d) demarcation inflammation,
- e) karyorexis.

2. Early signs of necrosis are detected using a histochemical reaction:

- a) with triphenyltetrazolium,
- b) according to Shueninov,
- c) with toluidine blue,
- d) according to Brachet,
- e) according to Felgen.

H. Sign of apoptosis:

- a) activation of DNA synthesis,
- b) activation of endonucleases,
- c) karyolysis,
- d) demarcation inflammation,
- e) a decrease in the content of free calcium in the cytosol.

4. Programmed cell death that normally occurs in the organs of the fetus is called:

- a) apoptosis,
- b) autolysis,
- c) heterolysis,
- d) fibrinoid necrosis,
- e) heterophagy.

5. A 71-year-old patient suffering from atherosclerosis developed pain in the left groin. I did not go to the doctor. By the time of examination: the moan is increased in volume, the tissues are flabby, black, the skin is macerated. The demarcation zone is not expressed. All provisions are correct, except:

- a) diagnosis - wet gangrene,
- b) the most likely causes of development - thrombosis or thromboembolism of the mesenteric artery,
- c) the color of the tissues is associated with the accumulation of iron sulfite,
- d) fuzzy boundaries of the affected areas are a favorable sign,
- e) there was an addition of putrid flora.

6. The features of irreversible damage to myocardiocytes in myocardial ischemia are:

- a) the inclusion of lipids in the cytoplasm,
- b) the disappearance of glycogen from the cytoplasm,
- c) swelling of cells,
- d) condensation of chromatin,
- e) overcontraction lines in the cytoplasm.

7. Red heart attack develops as a result of:

- a) coronary artery thrombosis,
- b) embolism of the branch of the pulmonary artery,
- c) testicular torsion,
- d) embolism of the superior mesenteric artery,
- e) portal vein thrombosis.

Select all correct answers

8. Choose correct statements:

- a) the cytoplasm of necrotic cells is more eosinophilic,
- b) pyknotic nuclei are stained with hematoxylin weaker,
- c) fatty necrosis is represented by precipitates of calcium soaps,
- d) with caseous necrosis, the cells retain their outlines,
- e) colliquation necrosis develops as a result of infection.

9. Serum creatine kinase levels increase with necrosis:

- a) the brain,
- b) kidneys,
- c) striated muscles,
- d) pancreas,
- e) myocardium.

10. Choose correct statements:

- a) gangrene - necrosis of tissues in contact with the external environment,
- b) sequestration - a type of gangrene,
- c) gangrene of the intestine is always wet,
- d) gangrene of the limb can be either dry or wet,
- e) the color of tissues in gangrene is due to the accumulation of hematin chloride.

11. Patient 67 years old, suffering from atherosclerosis of the mesenteric vessels, was admitted to the surgical department with symptoms of acute abdomen. With laparotomy - loops of the small intestine with pronounced necrotic changes. Choose the correct positions:

- a) wet gangrene has developed in the intestine,
- b) a pressure sore has developed in the intestine,

c) the intestine is swollen, purple-black, fibrinous overlays on the serosa,
 d) the most likely cause is thrombosis of the mesenteric artery,
 e) the presence of intestinal flora does not play a role.

12. A patient with transmural myocardial infarction developed back pain, hematuria. After another 2 days, right-sided hemiplegia and speech disorder developed. The patient died with symptoms of increasing cerebral edema. Choose the correct positions:

- a) myocardial infarction is a focus of coagulation necrosis,
- b) a heart attack has developed in the kidney,
- c) a heart attack has developed in the brain,
- d) kidney infarction is a focus of colliquation necrosis,
- e) red myocardial infarction.

13. Choose correct statements:

- a) coagulation necrosis is accompanied by tissue compaction and dehydration,
- b) colliquation necrosis - enzymatic softening and melting of tissue,

- c) caseous necrosis - a type of coagulation necrosis,
- d) gangrene - necrosis of tissues in contact with the external environment,
- e) sequestration - ischemic necrosis.

15. Localization of infarction is usually combined with the following morphological signs of the pathological process:

- 1) myocardium, a) white with a hemorrhagic corolla,
- 2) lung, b) can lead to ulceration,
- 3) the brain, c) leads to bleeding,
- 4) the small intestine. d) leads to the formation of a cyst,
- e) triangular shape.

16. Localization of necrosis is usually combined with the following type of pathological process:

Organ: Type of necrosis:

- 1) heart, a) coagulation,
- 2) kidney, b) colliquation,
- 3) muscles, c) fibrinoid,
- 4) brain, d) waxy,
- 5) the spleen. e) gangrenous.

Situational tasks.

Situational task 1.

During a colon resection for cancer, a patient developed bleeding from the vessel of the transverse colon mesentery and a drop in blood pressure. In the postoperative period, the picture of acute renal failure.

- 1. What changes in the kidneys led to the development of acute renal failure?
- 2. What is the mechanism of their development in this patient.

Situational task 2.

The patient was admitted to the clinic with an attack of angina pectoris. Sudden death occurred three days later. Autopsy: atherosclerosis of the aorta, blood vessels of the heart and brain, In the anterior wall of the left ventricle - a scar field. In the right hemisphere of the brain, in the region of the subcortical nuclei, an extensive focus of tissue destruction was found.

- 1. What clinical and morphological form of necrosis developed in the patient?
- 2. The outcome of what process is the myocardial scar?

Situational task 3.

A 65-year-old patient suffering from atherosclerosis developed pain in the right leg, tissues of 1 toe became black, the epidermis exfoliated.

- 1. What clinical and morphological form of necrosis has developed?
- 2. What kind of this form?
- H. What is the cause of this necrosis?
- 4. How to explain the black color of necrotic tissues.

List of recommended literature:

Basic literature:

1. "Basic pathology" Vinay Kumar, Ramzi S. Cotran, Stanley L. Robbins, 1997.

Additional literature:

1. "Pathology. Quick Review and MCQs" Harsh Mohan, 2004.
2. "Textbook of Pathology" Harsh Mohan, 2002.
3. "General and Systemic Pathology" Joseph Hunter, 2002.
4. "General and Systematic Pathology" Ed. J.C.E. Underwood – Edinburgh: Churchill Livingstone, 1996 (2th).
5. "Histology for Pathologist" Ed. S.S.Sternberg – Philadelphia: Lippincott Raven Publ, 1997 (2th).
6. "Histopathology. A Color Atlas and Textbook" Damjanov I., McCue P.A. – Baltimore, Philadelphia, London, Paris etc.: Williams and Wilkins, A Waverly Co., 1996.
7. "Muir's Textbook of Pathology" Eds. R.N.M. MacSween, K. Whaley London: ELBS, 1994 (14th).
8. "Pathology" Eds. Rubin, J.L. Farber – Philadelphia: Lippincott Raven Publ, 1998 (3th).
9. "Pathology Illustrated" Govan A.D.T., Macfarlane P.S., Callander R. – Edinburgh: Churchill Livingstone, 1995 (4th).
10. "Robbins Pathologic Basic of Disease" Eds. R.S.Cotran, V.Kumar, T.Collins – Philadelphia, London, Toronto, Montreal, Sydney, Tokyo: W.B.Saunders Co., 1998 (6th).
11. "Wheater's Basic Histopathology. A Color Atlas and Text" Burkitt H.G., Stevens A.J.S.L., Young B. – Edinburgh: Churchill Livingstone, 1996 (3th).
12. "Color Atlas of Anatomical Pathology" Cooke R.A., Steward B. – Edinburgh: Churchill Livingstone, 1995 (10th).
13. "General Pathology" Walter J.B., Talbot I.C. – Edinburgh: Churchill Livingstone, 1996 (7th).
14. "Concise Pathology" Parakrama Chandrasoma, Glive R. Taylor.
15. "Pathology" Virginia A. LiVolsi, Maria J. Merino, John S. J. Brooks, Scott H. Saul, John E. Tomaszewski, 1994.
16. "Short lectures on pathology" Zagoroulko A., 2002
17. "Robbins pathologic basis of diseases" Cotran R., Kumar V., Collins T.
18. "General pathology" Dr. Fatma Hafez, 1979.
19. "Anderson's Pathology" Damjanov I., Linder J. – St. Louis: Mosby Inc., 1995 (10th).

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