

3) Which of the following is caused by an enlarged prostate:

- a- Atrophy
- b- Hyperplasia
- c- Hypertrophy
- d- Metaplasia
- e- There is no correct answer

Answer: B

4) Which of the following chemical agents can cause cancer without metabolic conversion:

- a- Aflatoxin B
- b- Polycyclic hydrocarbons
- c- Chemotherapy drugs
- d- Aromatic amines
- e- Nitrites

Answer: C

6) Cerebral infarction is characterized by :

- a- Coagulative necrosis
- b- Caseous necrosis
- c- Liquefactive necrosis
- d- Fibroid necrosis
- e- Fat necrosis

Answer:C

7) Karyorrhexis means :

- a- Fragmentation
- b- Shrinkage and increased basophilia
- c- Basophilia fades
- d- More myelin figures
- e- Non of the above

Answer: A

8) Adaptive mechanism affect the prostate:

- a- Atrophy
- b- Metaplasia
- c- Physiologic Hyperplasia
- d- Hypertrophy
- e- Pathologic hyperplasia

Answer: E

9) A surgeon noticed during lung surgery a black lymph nodes , what is the problem:

- a- Anthracosis
- b- Hemochromatosis
- c- Dystrophic calcification
- d- Metastatic calcification

A

14) Which of the following is not a result of protein accumulation:

- a- Alcoholic hyaline in liver
- b- Russell bodies in plasma cells
- c- Neurofibrillary tangles in neurons
- d- Atherosclerosis

Answer: D

19) Breast cancer mass , the mass removed and sent to histopathologist what is the most indicator for malignancy :

a- Atypical mitosis

23) Which of the following get effected by low blood perfusion with the least damage :

- a- Cerebral cortex
- b- Cerebral spin
- c- Skeletal muscle
- d- Cardiac muscle
- e- Myocardium

Answer : C

25) One of the following doesn't cleave free radicals

- a- Myloperoxidase
- b- Vitamin A, E
- c- Catalase
- d- Superoxide dismutase

Answer : A

26) Accumulation of misfolded proteins inside the cell activate :

a – caspases

27) 48-year-old woman has malignant lymphoma involving lymph nodes in the para-aortic region. She is treated with a chemotherapeutic agent which results in loss of neoplastic cells through fragmentation of individual cell nuclei and cytoplasm. Over the next 2 months, the lymphoma decreases in size, as documented on abdominal CT scans. By which of the following mechanisms has her neoplasm primarily responded to therapy?

A- Coagulative necrosis

B- Mitochondrial poisoning

C- phagocytosis

D- Acute inflammation

E- Apoptosis.





Answer : E



MIDTERM
COLLECTED
QUESTIONS
OF
PATHOLOGY 019

$\alpha = 10\%$

$\hookrightarrow \approx 10\%$

- 1) **In the cellular phase of inflammatory response, the later strong adhesion of leukocytes to endothelium is mediated by:**
 - a. Integrin (ICAM-1)
 - b. CD31 (PECAM-1)
 - c. P and E Selectins
 - d. Interleukins and Tumor necrosis factor (ILs and TNF)
 - e. Alpha and Beta Chemokines
- 2) **Restoration of blood flow following myocardial infarction may impose more tissue injury sometimes, the main mechanism directly responsible for this paradoxical effect is:**
 - a. Decreased ATP production.
 - b. Increased reactive oxygen species formation.
 - c. Accumulation of misfolded proteins.
 - d. Hypoxia.
 - e. Decreased PH.
- 3) **The strong anti-inflammatory action of steroids is mediated by:**
 - a. Stimulation of histamine production
 - b. Stimulation of lipoxygenase enzyme
 - c. Inhibition of cyclooxygenase-1 (Cox-1)
 - d. Inhibition of phagocytosis
 - e. Inhibition of phospholipase leading to decreased production of leukotrienes and prostaglandins
- 4) **A tissue biopsy from the colon for one of your patients who suffered from diarrhea was taken. The pathologist calls you and is worried about a parasitic infestation. The most likely inflammatory cellular infiltrate that he observed would be:**
 - a. Lymphocytes
 - b. Plasma cells
 - c. Eosinophils
 - d. Macrophages
 - e. Eosinophils, fibroblasts and tissue macrophages.
- 5) **In intracellular accumulations, one of the following is an example of accumulation due to inherited enzyme deficiency:**
 - a. Silicosis.
 - b. Lysosomal storage diseases.
 - c. Anthracosis.
 - d. Steatosis.
 - e. Alpha 1 antitrypsin deficiency.

6) The process of coating microbes to enhance their phagocytosis is defined as:

- a. Apoptosis
- b. Opsonization
- c. Diapedesis
- d. Effective phagocytosis
- e. Transmigration



7) After sun exposure, a fair skinned patient noted a brownish discoloration over the skin of her face and dorsum of hands. Which of the following substances most likely accumulated at these sites?

- a. Melanin pigment.
- b. Hemosiderin pigment.
- c. Lipofuscin pigment.
- d. Bilirubin pigment.
- e. Glycogen pigment.



8) ONE of the following changes is associated with cellular hypertrophy:

- a. Autophagy
- b. Decreased function.
- c. Protein degradation,
- d. Decreased protein synthesis.
- e. Increased protein synthesis.



9) Which of the following is a typical example of adaptive physiological atrophy?

- a. Left ventricular changes in hypertension.
- b. Endometrial changes after menopause.
- c. Breast lobules changes during lactation.
- d. Uterine smooth muscle changes in pregnancy.
- e. Skeletal muscle changes in athletes.




10) Which of the following patterns of necrosis can be caused by focal bacterial and fungal infections:


- a. Caseous necrosis.
- b. Coagulative necrosis.
- c. Liquefactive necrosis.
- d. Fibrinoid necrosis.
- e. Fat necrosis.




11) Exposure to a high dose of radiation injury with resultant DNA damage is associated with which of the following cellular responses:

- a. Bax/Bak activation.
 - b. BH3 sensor inhibition.
 - c. Bcl2 activation.
 - d. Caspase inhibition.
 - e. Cytochrome c inhibition.
- 


12) Myeloperoxidase enzyme in macrophages catalyzes the conversion of:

- a. H₂O₂ to hypochlorite.
 - b. Oxygen to superoxide.
 - c. H₂O₂ to water.
 - d. H₂O₂ to hydroxyl group.
 - e. Superoxide to H₂O₂.
- 


13) A child was brought to the emergency room with sore throat. The Tonsils are red and congested, and he was febrile (Temp: 39.8 °c). Which mediator(s) is/are responsible for these 3 inflammatory features?

- a. Prostaglandins
 - b. Interleukins
 - c. Leukotrienes.
 - d. Bradykinin
 - e. Complement system proteins
- 

14) Which one of the following mediators is implicated in the pathogenesis ischemic heart disease and brain strokes?

- a. Prostaglandin C₄
 - b. Leukotriene B₄
 - c. Leukotriene E₄
 - d. Prostaglandin E₄
 - e. Thromboxane A₂.
- 

15) Which one of the following serum markers that we usually measure to indicate the presence of non-specific inflammatory reaction?

- a. Liver transaminases
 - b. Anti-nuclear antibodies
 - c. C-reactive protein
 - d. Prostaglandins C, D and E
 - e. Tumor necrosis factor
- 

16) Which of the following statements best describes the "inflammatory response"?

- a. In normal humans it is protective
- b. Always associated with systemic effects
- c. Transforms to chronic inflammation in 50% of the cases
- d. Events sequence is haphazard in 20% of the cases
- e. Its mediators are the same in amount



17) Which mediator is synthesized from arginine by an enzyme?

- a. Nitric oxide synthase
- b. Nitric oxide
- c. Hydrogen peroxide
- d. Oxygen super-oxide
- e. Myeloperoxidase



18) Elimination of self-reactive lymphocytes by apoptosis is mediated by which of the following molecules:

- a. BH3.
- b. Bcl2.
- c. P53.
- d. Fas-Fas ligand.
- e. Bax/Bak



19) This is a cartoon image representing an important inflammatory cell. Which of the following statements best describes this cell feature or function?

- a. It contains high level of nitric oxide
- b. This cell secretes neutrophil extracellular traps (NET)
- c. The life span is 5-6 days
- d. This cell is a major producer of cytokines mediators
- e. It is a major chronic inflammatory cell infiltrate



20) Which of the following mediators is a cytokine produced by macrophages?

- a. Bradykinin
- b. Prostaglandin E
- c. Histamine
- d. Tumor necrosis factor (TNF)
- e. Thromboxane A2



21) A 49-year-old male patient came with recent non-intentional weight loss, fever and lymphadenopathy. A lymph node biopsy showed multiple necrotizing granulomas. The top differential diagnosis should

- a. Sarcoidosis
- b. Non-specific chronic inflammation
- c. Viral lymphadenitis
- d. Tuberculous lymphadenitis
- e. Auto immune necrotizing lymphadenitis



22) A 23-year-old female patient with chronic history of bronchial asthma who underwent removal of polyps from nose. The tissue examination revealed benign polyp with numerous numbers of eosinophils (hundreds). The pathologic explanation for this finding is?

- a. Allergic reaction/polyp
- b. Acute parasitic inflammation
- c. Chronic fibrinous inflammation
- d. Eosinophilic granulomatous inflammation
- e. Acute suppurative inflammation



23) Accumulation of misfolded proteins in the cytoplasm, activates which of the following enzymes:

- a. Superoxide dismutase.
- b. Glutathione peroxidase.
- c. Catalase.
- d. Caspase.
- e. Telomerase.



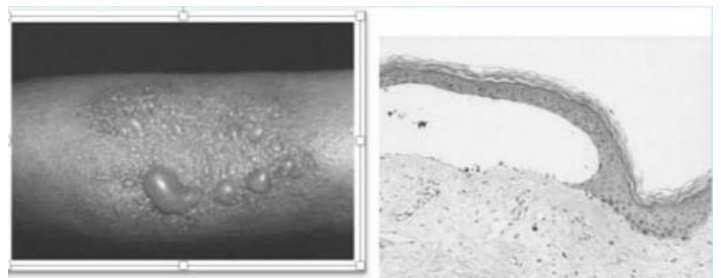
24) One of the following can cause pathologic apoptosis:

- a. Turnover of gut epithelium.
- b. Viral infections.
- c. Involution of endometrium after menopause.
- d. Embryogenesis.
- e. Elimination of self-reactive lymphocytes.



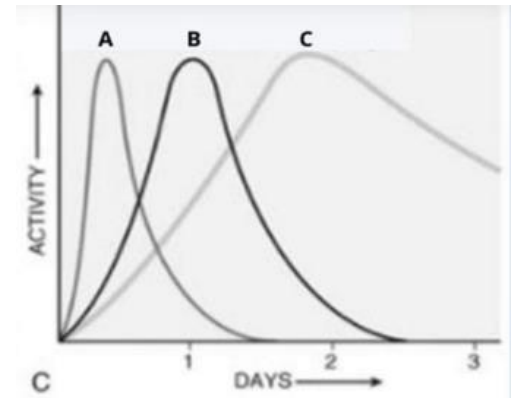
25) Below is a picture of a hand (left) and its pathologic microscopic image. The best description of this type of reaction is?

- a. Ulcerative inflammation
- b. Fibrinous inflammation
- c. Suppurative inflammation
- d. Serous inflammation
- e. Exudative inflammation



26) Which one of the following statements is correct?

- a. Curve A represent the macrophages and lymphocytes cellular infiltration phase
- b. Curve B represents the initial neutrophilic infiltration phase
- c. Curve A represents the initial cellular phase
- d. Curve C represents the initial edematous phase
- e. Curve B represents the initial vascular phase



27) One of the followings is an IRREVERSIBLE change in cell injury:

- a. Cellular swelling.
- b. Mitochondrial densities.
- c. Myelin figures.
- d. Cell membrane blebs.
- e. Nuclear karyorrhexis.

28) Which one of the following best describes the vascular leakage in the early vascular phase of acute inflammation?

- a. It is an early phase due to retraction of endothelial cells
- b. It is due to increased intravascular oncotic pressure
- c. It is due to direct endothelial cell injury by adhering neutrophils.
- d. The process is best called transcytosis induced by growth factors
- e. It is mediated by blockage of the lymphatic channels

29) The changes in the epithelial lining of the lower esophagus in patients with reflux esophagitis, from squamous epithelium to glandular epithelium is termed:

- a. Metaplasia.
- b. Atrophy.
- c. Dysplasia.
- d. Hyperplasia.
- e. Hypertrophy.

30) Which receptors are responsible for recognizing pathogens proteins in the initial phases of inflammation?

- a. Receptors for lectins and collectins.
- b. Receptors for circulating complement system proteins.
- c. Toll-like receptors
- d. Receptors for immunoglobulins E (IgE).
- e. Receptors for damage associated molecular patterns (DAMPS).

31) The major function of the alternatively activated macrophage (M2) is?

- a. Inhibition of inflammation and activation of repair
- b. Bacterial recognition
- c. Nitric oxide production
- d. Activation and stimulation of viral intracellular killing
- e. Opsonization and phagocytosis

(included in neoplasia material)

32) After removal of the appendix for a patient; the pathology report came back with "acute appendicitis". What did the pathologist most likely see under microscopic examination?

- a. Atypical glands with abnormal mitosis
- b. Loss of appendicular architecture and granulomas
- c. Numerous eosinophils
- d. Fibrosis and numerous lymphocytes
- e. Numerous tissue neutrophils

33) Coagulative necrosis is characterized by which of the following:

- a. Central caseation.
- b. Liquified center.
- c. Preserved tissue architecture initially.
- d. Cheesy like material.
- e. Caused by bacterial infections.

34) Which one of the following histopathological findings would be most consistent with Sarcoidosis?

- a. Serous transudative inflammation
- b. Non-necrotizing granulomatous inflammation
- c. Suppurative exudative inflammation
- d. Ulcerative inflammation
- e. Necrotizing granulomatous inflammation

35) Brown atrophy is a term that refers to the deposition of which of the following substances:

- a. Melanin pigment.
- b. Glycogen pigment.
- c. Lipofuscin pigment.
- d. Hemosiderin pigment.
- e. Bilirubin pigment.

36) Which of the following arachidonic acid metabolites is a strong chemotactic agent?

- a. Leukotriene E4
- b. Leukotriene B4
- c. Leukotriene C4
- d. Prostacyclin
- e. Prostaglandin G2



37) The hallmark of CCL4 toxicity in the liver is:

- a. Influx of inflammatory cells.
- b. Caseous necrosis.
- c. Endoplasmic reticulum stress.
- d. Protein accumulation.
- e. Fatty change.



38) The pathologist calls you to let you know that your patient tissue biopsy revealed the presence of "necrotizing granulomatous inflammation". What would be the most important question to ask the pathologist?

- a. Was there any atypical mitosis?
- b. Were there asteroid bodies in the granulomas?
- c. Were the granulomas large or small?
- d. Was there an increase in the number of plasma cells?
- e. Did you do acid fast stain (tuberculosis stain)?



39) Calcium deposition in damaged aortic valves can be explained as:

- a. Excessive calcium nutritional intake.
- b. Dystrophic calcification.
- c. Hypercalcemia.
- d. Apoptosis.
- e. Metastatic calcification.



40) Lipid peroxidation of cellular and organelle membranes in the process of cell injury is mediated by:

- a. Membrane pump failure.
- b. Low PH.
- c. Direct acting toxins.
- d. ATP depletion.
- e. Reactive oxygen species.



Answers:

1	A	21	D
2	B	22	A
3	E	23	D
4	C	24	B
5	B	25	D
6	B	26	B
7	A	27	E
8	E	28	A
9	B	29	A
10	C	30	C
11	A	31	A
12	A	32	E
13	A	33	C
14	E	34	B
15	C	35	C
16	A	36	B
17	B	37	E
18	D	38	E
19	B	39	B
20	D	40	E

DON'T WORRY, the first 100 years are the hardest :)

HAVE FUN ♥

Collected by: Sanaa Halabiah

MIDTERM COLLECTED QUESTIONS OF PATHOLOGY 018

1- A biopsy was taken from a patient and it was not cancer. Instead, they found out that it was chronic inflammation, what did they see?

- a-Fibrosis, macrophages, lymphocytes, plasma cells
- b-Neutrophils and macrophages
- c-Eosinophils
- d-Histamine and Heparin



2- In chronic gastric reflux, squamous epithelium may transform into columnar epithelium in a process called:

- a-Hyperplasia
- b-Atrophy
- c-Hypertrophy
- d-Metaplasia



3-Brain ischemia is characterized by:

- a-Coagulative necrosis
- b-Caseous necrosis
- c-Liquefactive necrosis
- d-Fibroid necrosis



4-A hunter is present with skin rash after direct contact with mushroom. Tests show that no microorganisms are involved but show also a huge number of IgE and mast cells. What is the right diagnosis ?

- a-Parasitic infection
- b-Bacterial infection
- c-Autoimmune disease
- d-Acute allergic reaction



5-IL-17 is mainly responsible for:

- a-Neutrophil recruitment
- b-Macrophage maturation
- c-T cells maturation
- d-Eosinophil recruitment



6-A patient is present with myocardial damage caused by necrosis. Which of the following can be seen?

- a-Intact cell membrane
- b-Karyolysis
- c-Apoptotic bodies
- d-Shrinkage of cells



7- A specimen shows granuloma with caseous necrosis, which of the following is correct?

- a-It is an acute inflammation
- b-Using acid-fast stain most likely won't do anything
- c-You should rule out tuberculosis
- d-It is probably of unknown etiology



8-Which of the following is true regarding toll like receptors?

- a-They circulate in the blood
- b-Collectins are examples
- c-They are essential for chemotaxis
- d-They recognize PAMPs



9-Which of the following is true regarding inflammation?

- a-It is essential for body survival
- b-Strong inflammatory responses are always good
- c-Non-vascularised tissues can get inflamed
- d-There is no repair step in inflammation



10-Opsonization is best described as:

- a-Recognizing the pathogen

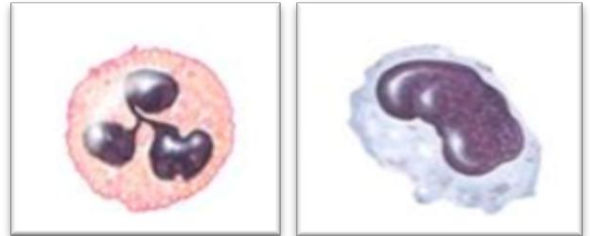


b-Coating the microbe to enhance phagocytosis

c-Following a specific chemical gradient

d-Activation of the complement system

11-Which of the following statements is true regarding these pictures?



a-The cell on the left is a monocyte

b-The cell on the left has half-life of 1-2 days

c-The cell on the right is a neutrophil

d-Both cells have the same half-life



12-Which of the following statements is true regarding steroids?

a-They are a potent inhibitor of phospholipases

b-They are inhibitors of COX-1

c-They induce immunity

d-They are considered as pro-inflammatory drugs



13-Which of the following pigments is found in sites of bruises?

a-Carbon

b-Lipofuscin

c-Hemosiderin

d-Melanin



14-Which of the following is true regarding M2 pathway?

a-It is also called the classical pathway

b-It is activated by the presence of microbes

c-It stops inflammation and promotes repair

d-Macrophages start producing IL-1 and chemokines



15-Which of the following enzymes are activated by apoptosis intrinsic pathway caused by accumulation of misfolded proteins?

a-endonucleases

b-Lipases

c-Caspases

d-Proteases



16- Which of the following is an example of physiologic hypertrophy?

a-Compensation after the removal of part of the liver

b-Cardiac enlargement in aortic valve disease

c-The change of columnar epithelium in cigarette smokers

d-Myometrium during pregnancy



17-The breast during lactation undergoes:

a-Hyperplasia

b-Atrophy

c-Hypertrophy

d-Metaplasia



18-48 year old tumor patient was given chemotherapeutic drugs to kill malignant cells. These cells are affected through:

a-Necrosis

b-Apoptosis

c-Hypertrophy

d-They are not affected



19-Which of the following conditions is most likely to be found in alcoholic patients?

a-Lipofuscin accumulation

b-Cholesterol esters accumulation

c-steatosis

d-Dystrophic calcification



20- Which of the following enzymes reduce oxidative stress?

- a-Nitric oxide synthase
- b-Glutathione peroxidase
- c-myeloperoxidase
- d-Proteases



21-Ischemia reperfusion injury is directly linked to:

- a-Protein misfolding
- b-Generation of ROS
- c-Toxins
- d-Necrosis



22-Which of the following is considered an anaphylatoxin ?

- a-C5A
- b-C3B
- c-IgG
- d-NO



23-A liver biopsy showed that a patient has a noncaseating granuloma. Which of the following disease can cause this condition?

- a-Tuberculosis
- b-Sarcoidosis
- c-Syphilis
- d-Asthma



24-TNF is a:

- a-Cytokine
- b-Chemokine
- c-Lipid
- d-Complement protein



25-Which of the following cells and molecules are involved in asthma?

- a-IgE and eosinophils
- b-Cytokines
- c-Macrophages and neutrophils
- d-Complement proteins



26-Which of the following is true regarding chemokines ?

- a-C3A is an example
- b-Factor H is an inhibitor for them
- c-They are involved in opsonization
- d-They have G-protein coupled receptors



27-Which of the following molecules is anti-apoptotic ?

- a-Bax
- b-P53
- c-BCL-2
- d-Bak



28-Stasis and Erythema are caused by:

- a-Leukocytes
- b-Expression of selectins
- c-PMN accumulation
- d-Histamine as a vasodilator



29- A patient is present with a red and swollen appendix and had to undergo appendectomy. No considerable amount of lymphocytes is found. Which of the following is correct?

- a-It is a chronic appendicitis
- b-Transudate fluid is found
- c-It is a purulent suppurative inflammation
- d-None of the above is correct



30-Which of the following are pain mediators?

- a-Chemokines
- b-Prostaglandins and bradykinin
- c-Histamine
- d-Platelet-activating factor



31-Weak adhesion to the endothelium is mediated by:

- a-LFA-1
- b-Integrins
- c-P and E selectins
- d-PECAM-1



32-Which of the following is eliminated through extrinsic pathway of apoptosis?

- a-Cells with many DNA mutations
- b-Accumulation of misfolded proteins
- c-Self reacting lymphocytes
- d-Cells with oxidative stress



33- Which of the following is true regarding this picture?

- a-It is the same mode of necrosis as in brain infarction
- b-The underlying tissue architecture is preserved
- c-It can be seen in focal bacterial infection
- d-It can be seen in tuberculosis



34- Which of the following is true regarding Nitric Oxide?

- a-Acts as a vasoconstrictor
- b-Produced without the need of enzymes
- c-A soluble gas derived from arginine
- d-Its concentration is always constant



35-What type of necrosis can be seen in this picture?

- a-Gangrenous necrosis
- b-Fibrinoid necrosis
- c-Fat necrosis
- d-Caseous necrosis



36- Acute phase proteins are best described as:

- a-Their levels are used to diagnose prolonged chronic inflammation
- b-C-reactive protein is the only example
- c-Specific indicators of certain diseases
- d-Non-specific indicator of acute inflammation



37-Which of the following is typical for apoptosis ?

- a-Disrupted plasma membrane
- b-Absence of inflammation
- c-Pyknosis and karyorrhexis
- d-Leakage of cell components



38- What causes effusion of fluids in the first stages of vascular phase?

- a-Endothelial injury
- b-Leukocytes recruitment
- c-Retraction of endothelium via mediators
- d-Margination



39-Caseous necrosis is most likely found in:

- a-Peritoneal cavity
- b-Tuberculosis
- c-Myocardial infarction
- d-Pancreatic tissue



40- Which of the following is a direct result of ROS damage?

a-Failure of ATP synthesis

b-Lactic acidosis

c-Detachment of ribosomes from ER

d-Lipid peroxidation



Answers

1	A	21	B
2	D	22	A
3	C	23	B
4	D	24	A
5	A	25	A
6	B	26	D
7	C	27	C
8	D	28	D
9	A	29	C
10	B	30	B
11	B	31	C
12	A	32	C
13	C	33	B
14	C	34	C
15	C	35	A
16	D	36	D
17	A	37	B
18	B	38	C
19	C	39	B
20	B	40	D

Samia Sami Simarin 🌟

Special Thanks For: Ameen Alsaras 🙏

"حَدَّقْنَا طَوِيلًا فِي السَّاعَةِ، وَنَسِينَا بِأَنَّا نَحْنُ الْبَطَّارِيَةُ." 🕒🌻

Good Luck!!