LEC 2- PATHOLOGY

1. **What distinguishes reversible cell injury from irreversible cell injury?**

   A) The presence of inflammation

   B) The ability of the cell to return to its original state

   C) The type of injury (mechanical vs. chemical)

   D) The duration of the injury

   Answer: B

2. **Which of the following is a characteristic of reversible cell injury?**

   A) Cell membrane disruption

   B) Leakage of cellular contents

   C) Cellular swelling

   D) Marked nuclear fragmentation

   Answer: C

3. **During irreversible injury (necrosis), which of the following changes occurs?**

   A) Increased cellular function

   B) Loss of plasma membrane integrity

   C) Preservation of cellular architecture

   D) Maintenance of ATP production

   Answer: B

4. **What is the primary cause of coagulative necrosis?**

   A) Bacterial infection

   B) Trauma

   C) Ischemia

   D) Apoptosis

   Answer: C

5. **Which type of necrosis is characterized by a "cheese-like" appearance?**

    A) Coagulative necrosis

    B) Caseous necrosis

    C) Liquefactive necrosis

    D) Fat necrosis

    Answer: B

6. **What is a defining feature of apoptosis compared to necrosis?**

    A) Cell swelling

    B) Uncontrolled cell death

    C) Preservation of membrane integrity

    D) Extensive inflammation

    Answer: C

7. **Which of the following is true about the cellular changes in necrosis?**

    A) The nucleus remains intact

    B) Cytoplasmic eosinophilia increases

    C) Cells undergo shrinkage

    D) Cellular enzymes are preserved

    Answer: B

8. **Which type of necrosis is associated with acute pancreatitis?**

    A) Fibrinoid necrosis

    B) Fat necrosis

    C) Liquefactive necrosis

    D) Caseous necrosis

    Answer: B

9. **What is the significance of detecting tissue-specific enzymes in the blood?**

    A) It indicates the presence of inflammation.

    B) It helps diagnose the site of tissue injury.

    C) It confirms the type of necrosis.

    D) It shows the degree of cellular apoptosis.

    Answer: B

10. **Which type of cell death involves both necrosis and apoptosis?**

    A) Coagulative necrosis

    B) Necroptosis

    C) Liquefactive necrosis

    D) Caseous necrosis

    Answer: B

11. **Which of the following features is indicative of irreversible injury during necrosis?**

    A) Disrupted mitochondrial function with ATP production

    B) Cellular swelling with intact organelles

    C) Nuclear karyolysis and karyorrhexis

    D) Enhanced protein synthesis

    Answer: C

12. **What mechanism primarily leads to cellular swelling in reversible injury?**

    A) Increased ATP production

    B) Activation of Na/K ATPase

    C) Failure of the Na/K ATP-dependent pump

    D) Decreased extracellular osmotic pressure

    Answer: C

13. **Which necrosis type is characterized by tissue architecture destruction and an acellular center, typically associated with granulomatous inflammation?**

    A) Coagulative necrosis

    B) Caseous necrosis

    C) Fibrinoid necrosis

    D) Liquefactive necrosis

    Answer: B

14. **In which scenario would you expect to observe liquefactive necrosis?**

    A) Myocardial infarction

    B) Bacterial infection leading to pus formation

    C) Acute liver failure

    D) Radiation exposure

    Answer: B

15. **Which of the following changes is most likely to occur in a cell undergoing necrosis?**

    A) Cell shrinkage and membrane blebbing

    B) Increased nuclear basophilia

    C) Cellular apoptosis with minimal inflammation

    D) Release of cellular enzymes into the bloodstream

    Answer: D) Release of cellular enzymes into the bloodstream

16. **What is the hallmark of gangrenous necrosis?**

    A) Preservation of cellular architecture

    B) Presence of necrotic fat cells

    C) Distinction between dry and wet forms

    D) Accompaniment by caseous material

    Answer: C

17. **Which type of necrosis is commonly associated with autoimmune diseases and can only be observed microscopically?**

    A) Coagulative necrosis

    B) Fibrinoid necrosis

    C) Fat necrosis

    D) Caseous necrosis

    Answer: B

18. **In the context of cell injury, which factor is crucial for determining whether a cell undergoes apoptosis rather than necrosis?**

    A) Severity of the initial injury

    B) Availability of growth factors

    C) Presence of inflammatory cells

    D) Integrity of the extracellular matrix

    Answer: A

19. **Which statement best describes the morphological changes observed during the early stages of irreversible cell injury?**

    A) Cells appear normal with intact membranes.

    B) Increased eosinophilia due to denatured proteins.

    C) Predominantly lymphocytic infiltration.

    D) Significant basophilia indicating active protein synthesis.

    Answer: B

20. **What type of necrosis is characterized by focal destruction of fat tissue, often due to the action of pancreatic lipases?**

    A) Caseous necrosis

    B) Coagulative necrosis

    C) Fat necrosis

    D) Liquefactive necrosis

Answer: C

Part 2 – Cases :

1. **A 65-year-old male presents with chest pain and elevated cardiac enzymes. An ECG shows ST elevation, and blood tests confirm myocardial infarction.**

   What type of cell injury is primarily occurring in this patient's heart tissue?

   A) Reversible injury

   B) Irreversible injury (necrosis)

   C) Apoptosis

   D) Fatty change

   Answer: B

2. **A 40-year-old woman with a history of alcohol abuse develops jaundice. A liver biopsy reveals swollen hepatocytes with large lipid droplets.**

   What is the most likely type of cell injury occurring in this scenario?

   A) Necrosis

   B) Apoptosis

   C) Reversible injury with fatty change

   D) Fibrinoid necrosis

   Answer: C

3. **A patient with a bacterial abscess in the brain develops fever and neurologic deficits. Imaging shows liquefaction of the tissue.**

   Which type of necrosis is most likely occurring in this patient?

   A) Coagulative necrosis

   B) Caseous necrosis

   C) Liquefactive necrosis

   D) Gangrenous necrosis

Answer: C

4. **A 55-year-old male undergoes a leg amputation due to severe peripheral artery disease. Post-surgery, the amputated site shows dry, blackened tissue without signs of infection.**

   What type of necrosis is this most consistent with?

   A) Caseous necrosis

   B) Fibrinoid necrosis

   C) Gangrenous necrosis (dry)

   D) Fat necrosis

   - **Answer:** C

5. **A 70-year-old woman with a history of autoimmune vasculitis presents with skin lesions. A biopsy shows fibrin deposition in blood vessel walls.**

   Which type of necrosis is most likely occurring in this patient?

   A) Coagulative necrosis

   B) Liquefactive necrosis

   C) Fibrinoid necrosis

   D) Caseous necrosis

   Answer: C

6. **A 30-year-old man is exposed to high levels of radiation and subsequently develops multi-organ failure. Biopsy of the liver shows extensive cell damage with preserved architecture but a lack of nuclei.**

   Which type of necrosis is likely present?

   A) Caseous necrosis

   B) Coagulative necrosis

   C) Apoptosis

   D) Fat necrosis

   Answer: B

7. **A 50-year-old woman is diagnosed with pancreatitis after consuming a large meal. Her lab tests reveal elevated lipase levels, and imaging shows necrosis of peritoneal fat.**

   What type of necrosis is most consistent with her condition?

   A) Coagulative necrosis

   B) Fat necrosis

   C) Liquefactive necrosis

   D) Caseous necrosis

   Answer: B

8. **A 25-year-old man suffers a head injury and develops a localized area of necrotic brain tissue with pus formation.**

   Which type of necrosis is this likely to represent?

   A) Coagulative necrosis

   B) Caseous necrosis

   C) Liquefactive necrosis

   D) Gangrenous necrosis

   Answer: C

9. **A 60-year-old diabetic patient develops a foot ulcer that becomes necrotic. The tissue appears black and there is foul odor with signs of infection.**

   What type of necrosis is this?

   A) Coagulative necrosis

   B) Liquefactive necrosis

   C) Gangrenous necrosis (wet)

   D) Caseous necrosis

   Answer: C

10. **A 45-year-old male is diagnosed with tuberculosis. A lung biopsy reveals caseating granulomas with necrotic tissue resembling cheese.**

What type of necrosis is primarily involved in this patient's lung tissue?

A) Coagulative necrosis

B) Caseous necrosis

C) Liquefactive necrosis

D) Fibrinoid necrosis

Answer: B

11. **A 72-year-old male with a long history of smoking presents with a lung mass. A biopsy reveals necrotic tissue with large areas of caseous necrosis and a surrounding granulomatous response.**

    What is the most likely underlying condition associated with this necrosis?

    A) Bacterial pneumonia

    B) Tuberculosis

    C) Lung cancer

    D) Chronic obstructive pulmonary disease (COPD)

    Answer: B

12. **A 50-year-old woman presents with severe abdominal pain after binge eating fatty foods. Imaging reveals inflammation and necrosis of the pancreas.**

    Which type of necrosis is most likely occurring in this case?

    A) Coagulative necrosis

    B) Liquefactive necrosis

    C) Fat necrosis

    D) Fibrinoid necrosis

    Answer: C

13. **A 38-year-old male experiences a stroke resulting in cerebral ischemia. His MRI shows areas of liquefactive necrosis in the affected brain region.**

What histological feature would you expect to find in this necrotic tissue?

A) Preservation of tissue architecture

B) Dense eosinophilia

C) Neutrophilic infiltration and pus formation

D) Caseous material in the center

Answer: **C**

14. **A 65-year-old woman presents with an ulcer on her foot that has become necrotic and has a foul odor. Histology shows extensive necrosis with bacteria present.**

What type of necrosis is most likely present?

A) Coagulative necrosis

B) Gangrenous necrosis (wet)

C) Caseous necrosis

D) Apoptosis

Answer: B

15. **A 29-year-old female is diagnosed with systemic lupus erythematosus (SLE). A kidney biopsy shows fibrin deposition in the vascular walls and areas of necrosis.**

What type of necrosis is indicated in this patient's biopsy?

A) Caseous necrosis

B) Coagulative necrosis

C) Fibrinoid necrosis

D) Liquefactive necrosis

Answer: **C**

16. **A 45-year-old man suffers a traumatic injury that disrupts blood flow to a portion of his leg, resulting in tissue death. His leg shows a characteristic pale appearance.**

What type of necrosis is likely occurring in this case?

A) Caseous necrosis

B) Coagulative necrosis

C) Gangrenous necrosis

D) Liquefactive necrosis

Answer: B

17. **A 54-year-old female with a history of obesity and diabetes develops a necrotic ulcer on her foot. Histological examination reveals necrotic adipocytes.**

    What type of necrosis is primarily occurring in this patient's foot?

    A) Caseous necrosis

    B) Fat necrosis

    C) Liquefactive necrosis

    D) Coagulative necrosis

    Answer: B

18. **A patient presents with a necrotic lesion on the skin that has a "dry" appearance, and laboratory tests indicate ischemia in the underlying tissues.**

    What type of necrosis does this most likely represent?

    A) Gangrenous necrosis (dry)

    B) Liquefactive necrosis

    C) Fibrinoid necrosis

    D) Caseous necrosis

    Answer: A

19. **A 40-year-old male develops a localized abscess in the liver due to a bacterial infection. Histological examination shows necrotic tissue and pus formation.**

    Which type of necrosis is most likely occurring?

    A) Coagulative necrosis

B) Caseous necrosis

C) Liquefactive necrosis

D) Fat necrosis

Answer: C

20. **A patient undergoing chemotherapy for cancer develops severe mucositis. A biopsy of the oral mucosa reveals cell death characterized by individual cell apoptosis.**

What type of cell death is primarily observed in this case?

A) Necrosis

B) Apoptosis

C) Fibrinoid necrosis

D) Liquefactive necrosis

Answer: B

UWORLD Q –STEP 1:

A 65-year-old man comes to the emergency department due to acute-onset, severe right flank pain; nausea; and vomiting for the past hour. His medical conditions include prostate cancer and membranous nephropathy. Blood pressure is 148/60 mm Hg and pulse is 95/min. On physical examination, the patient appears to be in moderate distress due to pain and is diaphoretic. There is right costovertebral angle tenderness. Urinalysis shows hematuria. Contrast-enhanced CT scan reveals a wedge-shaped perfusion defect in the right kidney. The affected renal tissue is most likely to develop which of the following histologic changes over the next several days?

A) Caseous necrosis

B)Coagulative necrosis

C) Fat necrosis

D)Fibrinoid necrosis

E) Liquefactive necrosis

F)Tissue calcification

Answer: B

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