

Histology

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



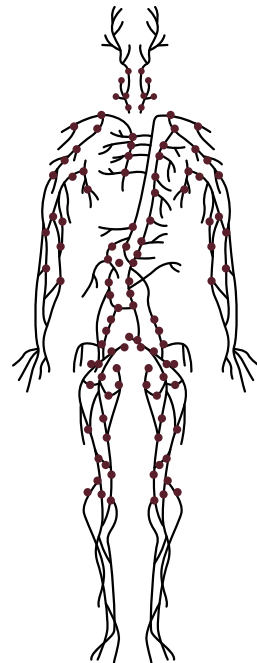
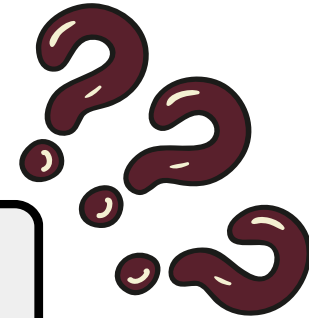
MID | Lecture #

﴿وَقُلْ رَبِّ ادْخُلْنِيْ مُدْخَلَ صِدْقٍ وَّاَخْرِجْنِيْ مُخْرَجَ صِدْقٍ وَّاجْعَلْ لِّيْ مِنْ لَّدُنْكَ سُلْطٰنًا نَّصِيْرًا﴾
ربنا آتنا من لدنك رحمة وهيئ لنا من أمرنا رشداً

Past Papers

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Blood Cells

ربّ اشرح لي صدري، ويسّر لي أمري، واحلل عقدة من لساني يفقه قلبي

Q1: Which one of the following about the HCT is NOT true:

- A) The value of HCT is usually 45%
- B) The HCT expresses the (%) of red blood cells in a volume of whole blood
- C) The values of HCT closely paralleled the values of hemoglobin & red cell count
- D) The space occupied by the packed red blood cells is termed the hematocrit
- E) The value of HCT does not vary with age & sex of the individual

Ans: E

Q2: Choose the wrong statement:

- A) Unlike platelets, RBCs never stack together
- B) Internum of the crystalloid granules contains major basic proteins

Ans: A

Q3: Erythrocytes, Choose the WRONG statement:

- A) Eosinophilia of erythrocytes is due to hemoglobin
- B) About one week is needed for the formation of erythrocytes from proerythroblasts
- C) Erythrocytes appear electron dense and homogenous under TEM
- D) Rouleaux formation is a reversible condition due to surface tension caused by erythrocytes biconcave surface in slow circulation
- E) Mature erythrocytes are still capable of producing a little amount of hemoglobin

Ans: E

Q4: Which of the following statements most describe why RBC's are efficient in carrying oxygen:

Contains hemoglobin

2. Have no nucleus

3. Have many mitochondria needed to produce ATP

4. Biconcave shape

5. 4 oxygen molecules are carried by hemoglobin

A) 1, 3, 4

B) 2, 4, 5

C) 1, 2, 4, 5

D) 1, 2, 3, 5

E) 1, 2, 3, 4, 5

Ans: C

Q5: Which biochemical component of the erythrocyte cell surface is primarily responsible for determining blood group (ABO)?

- A) Fatty acid
- B) Carbohydrate
- C) Protein
- D) Cholesterol

Ans: B

Q6: What is the approximate life span of circulating erythrocyte?

- A) 4 months
- B) 120 weeks
- C) 20 days
- D) 14-28 days

Ans: A

4 months = 120 days 😊

Q7: Eosinophils are cells with bilobed nuclei and many cytoplasmic granules:

A) True

B) False

Ans: A

Q8: Erythrocytes are very small, a cell-like element with no nuclei but many granules:

A) True

B) False

Ans: B

Q9: Erythrocytes consume some of the oxygen they transport for ATP production:

A) True

B) False

Ans: B

Q10: Which of the following cells express receptors for IgE on their cell surface?

- A) Cells with spherical nuclei and scant cytoplasm
- B) Biconcave cells with no nuclei
- C) Multinucleated cells with irregular S-shaped nuclei and large basophilic cytoplasmic granules
- D) Highly phagocytic cells with many basophilic cytoplasmic granules
- E) Single nucleated cells with many basophilic cytoplasmic granules

Ans: E

Q11: Blood formed elements, choose the wrong statement :

- A) Erythrocytes lack class 1 MHC molecules
- B) Both basophil and mast cell are granulated but basophil nucleus is lobulated while the mast cell nucleus is round
- C) Human thrombocytes have, in contrast to erythrocytes, never been individual nucleated cells
- D) The internum of eosinophilic granules contains major basic protein
- E) Most neutrophils in female peripheral blood normally show barr bodies

Ans: E

Q12: The cell that contains bi-lobed nucleus and large granules that obscure its nucleus

A) monocyte

B) eosinophil

C) Basophil

D) neutrophil

Ans: C

Q13: Which of the following is wrong about WBCs?

- A) Neutrophils are the most prominent cells in blood
- B) eosinophils are more phagocytic and bactericidal than neutrophils
- C) B cells can act as APCs

Ans: B

Q14: Which of the following cells have granules containing peroxidase and histamines?

- A) neutrophils
- B) Basophils
- C) eosinophils

Ans: C

Q15: Which of the following is false :

- A) neutrophils phagocytic activity is enhanced by the presence of complement
- B) absence of barr body in neutrophils and other body cells indicate true male (XY)
- C) Neutrophils are called cells of chronic inflammation

Ans: C

Q16: Which cell type has cytoplasmic granules that contain heparin & histamine ?

- A) Eosinophil
- B) Basophil
- C) Neutrophil
- D) Lymphocyte

Ans: B

Q17: Neutrophils are multi-nucleated cell with polymorphic nuclei :

A) True

B) False

Ans: B

Q18: Which of the following cells function in the formation of pus at wound site :

- A) Cells with spherical nuclei
- B) Cell-like elements with no nuclei
- C) Biconcave cells with no nuclei
- D) Cells with polymorphic nuclei

Ans: D

Q19: The main different between basophils and mast cells is :

- A) The shape of the nucleus
- B) The density of their granules
- C) The content of their granules
- D) The staining reaction of their granules

Ans: A

Q20: Which one of the following is a correct pair?

A) Basophil / histaminasease

B) Eosinophil / heparin

C) Basophil / basic protein

D) Basophil / histamine

Ans: D

Q21: Wrong statement :

- A) Neutrophils circulate for hours in blood after maturation
- B) Neutrophils circulate for days in blood after maturation

Ans: B

Q22: Wrong statement :

- A) Granulocytes have spherical shape in blood & irregular shape in connective tissue
- B) Granulocytes have irregular shape in blood & spherical shape in connective tissue

Ans: B

Q23: Examination of a normal peripheral blood smear reveals a cell more than twice the diameter of an erythrocyte with a C-shaped nucleus and a frosted glassy cytoplasm; Which of the following cell types is being described?

- A) Basophil
- B) Eosinophil
- C) Lymphocyte
- D) Neutrophil
- E) Monocyte

Ans: E

Q24: A cell with c shaped single non lobulated nucleus :

- A) Mast cell
- B) Eosinophil
- C) Lymphocyte
- D) Neutrophil
- E) Monocyte

Ans: E

Q25: Cytotoxic T lymphocytes' marker:

A) CD45 +

B) CD34 –

C) CD3 +

D) CD19 –

E) CD8 +

Ans: E

Q26: Which of the following is wrong about HLA class II?

- A) it is presented in all nucleated cells
- B) it is recognized by T helper
- C) it is coupled to peptide product of proteins the cells had ingested

Ans: A

Q27: Which of the following is the correct statement?

- A) Cytotoxic cells recognize MCH 1 and the Ag presented on it
- B) cytotoxic T-Cells bind to MHC 2
- C) cytotoxic T-Cells express MHC 2 on their surface

Ans: A

Q28: Which of the following is correct about monocytes?

- A) They are phagocytic cells
- B) They increase dramatically in parasitic infections
- C) They are responsible for allergic reactions

Ans: A

Q29: Which of the following cells can give rise to an APC ?

A) Myeloblast

B) Basophil

C) Monocyte

Ans: C

Q30: True about monocytes :

- A) multinucleated cell
- B) frosted glass appearance
- C) nucleus is masked by granules

Ans: B

Q31: Lymphocytes, choose the CORRECT statement?

- A) Are produced only in the bone marrow
- B) Are the most abundant type of leucocytes
- C) Are produced only in the lymphoid tissues
- D) Are granular leucocytes
- E) Are produced in the bone marrow & in the lymphoid tissues

Ans: E

Q32: Which of the following is false?

- A) monocytes have C-shaped nucleus
- B) 5-lobed-nucleus neutrophils are less mature than 4-lobed ones
- C) B and T lymphocytes cannot be distinguished under LM

Ans: B

Remember: Neutrophils will show increasing segmentation as they mature

Q33: Thrombocytes, choose the WRONG statement :

- A) Microtubules and microfilaments are found in the outer marginal bundle
- B) Have thick glycocalyx
- C) Originate from bone marrow cells with many dynamic cell projections
- D) Often form basophilic clumps in histological preparations
- E) Formation of germinal centers for B-cell proliferation in each node's cortex

Ans: E

Platelets are for clotting blood, and germinal centers are spots in lymph nodes where B-cells multiply—they're completely different functions

Q34: One of the following about blood cells is incorrect:

- A) Eosinophils have a particular phagocytic affinity for antigen- antibody complex
- B) Erythrocytes lack MHC-I
- C) Agranulocytes have a single lobulated nucleus

Ans: C

Q35: One of the following is correct about platelets:

- A) Granulomere contains cytoskeleton and membranous channel
- B) Alpha granules contain lysosomes
- C) Lack glycocalyx
- D) Megakaryocyte cells produce them from outside bone marrow
- E) Pale peripheral zone is called hyalomere

Ans: E

Q36: Which of the following is true about basophils :

- A) They are single lobulated cells
- B) They have the highest phagocytic activity among granulocytes
- C) They have receptors for IgE
- D) They are highly motile
- E) We commonly see basophils in blood films

Ans: C

Q37: Cells whose granules contain major basic proteins :

- A) Polymorphs
- B) Cells with bi-lobed nucleus and acidophilic granules in cytoplasm
- C) Small Cells with scant cytoplasm
- D) Small fragments of cells
- E) Biconcave anucleated discs

Ans: B

Q38: Small cells with small highly heterochromatic nucleus and minimal cytoplasm :

- A) Neutrophils
- B) Basophils
- C) Eosinophils
- D) Inactive lymphocytes

Ans: D

Q39: Which of the following may act as an antigen presenting cell :

A) Natural killer cells

B) Basophils

C) Eosinophils

D) B lymphocytes

Ans: D

Q40: Which of the following has a granulomere and hyalomere :

- A) RBCs
- B) small cell- like element has many granules
- C) binuclear cell with acidophilus granules
- D) granulated polymorphic cells

Ans: B

Q41: Which of the following is false about WBC :

- A) eosinophils act in parasitic infection
- B) basophils releases eosinophilic chemotactic agent
- C) monocytes – powerful phagocytic ability
- D) neutrophils are the most common leukocytes

Ans: C

Q42: The wrong statement :

Macrophages secretes IL-2 that stimulates T-cells

Q43: AIDS progression :

CD4+ count decreases and viral load increases

Q44: Cell with the same size of erythrocyte and blue cytoplasm with large nucleus?

Lymphocyte

Hematopoiesis



Q1: which statement is wrong about granulopoiesis ?

- a) It takes around 2 weeks
- b) Precursors have lobulated nucleus
- c) Some of the Precursors have indented nucleus
- d) All choices are true

Ans: B

Q2. Reticulocytes, choose the CORRECT statement:

- A) Their percentage in peripheral blood is not changed in hemorrhage.
- B) Contain remnants of DNA.
- C) Contain acidophilic reticulum of polyribosomes.
- D) Have the same size as mature erythrocytes.
- E) They are stained with Brilliant cresyl blue.

Ans: E

Q3. Which of the following is wrong about reticulocytes?

- A) Contain DNA not RNA
- B) increases in hemolytic anemia
- C) can synthesize heme

Ans: A

Reticulocytes can still synthesize hemoglobin and heme until they fully mature.

Q4. What can be found inside the red bone marrow?

- A) Hematopoietic stem cells along with numerous fat tissue
- B) Hematopoietic stem cells + sinusoidal capillaries + reticular tissue
- C) Hematopoietic stem cells + fenestrated capillaries + reticular tissue

Ans: B

Q5. Hematopoiesis starts in liver, moves to yolk sac and then to the bone marrow .

- A) True
- B) False

Ans: B

Q6. Choose the correct statement regarding the changes occurring during Erythropoiesis

- A) Specific granules appear in cytoplasm
- B) Nucleus disappears
- C) Cytoplasm changes to basophilic
- D) Cells maintain their capacity for mitosis
- E) Size of cells increases

Ans: B

Q7. Choose the wrong statement about erythropoiesis:

- A) Lowest erythropoiesis occurs in the pelvis and vertebrae.
- B) In adults, erythropoiesis mainly occurs in flat bones such as the sternum, ribs, and pelvis.
- C) In the fetus, erythropoiesis initially occurs in the yolk sac, then the liver and spleen.
- D) Erythropoietin is primarily produced by the kidney in response to hypoxia.
- E) Reticulocytes are released from bone marrow into circulation and mature into erythrocytes within a day.

Ans: A

Q8. The precursor cells of granulocytes are destroyed by radiotherapy. To reestablish the granulocytic lineage, which of the following cells should be transplanted?

- A) Promyelocytes.
- B) Metamyelocytes.
- C) Promonocytes.
- D) Band cells.
- E) Myelocytes.

Ans: A

Q9. Regarding granulopoiesis, choose the **WRONG** statement

- A) Azurophilic granules first appear at the promyelocyte stage.
- B) Secondary granules first appear at the myelocyte stage.
- C) Metamyelocytes have kidney shaped nuclei and cannot divide.
- D) Both types of granules in granulopoietic cells are synthesized by the free ribosomes.
- E) Band cells are almost mature granulocytes but without segmented nuclei

Ans: D

Q10. Which of the following is wrong about neutrophils?

- A) it has its own specific granules
- B) it lives for several hours only and stores glycogen
- C) it has polymorphic nucleus throughout its life
- D) measuring neutrophils from blood represents all neutrophils in our body

Ans: D

Blood measure circulating pool

Q11. We recognize myelocytes from:

- A) specific granules
- B) Primary granules
- C) size

Ans: A

Q12. Choose the correct statement.

- A) The first morphologically distinguishable stage of development of red blood cells is basophilic erythroblast.
- B) The first morphologically distinguishable stage of development of granulocytes is promyelocyte.
- C) The type of tissue serves as a supportive structure for hematopoiesis in the bone marrow is a jelly-like connective tissue.
- D) Myeloid progenitor cell can be a precursor for all leukocytes except lymphocytes.

Ans: D

Q13. Which of the following statements about granulopoiesis is **WRONG**?

- A) Azurophilic (primary) granules appear first in promyelocytes.
- B) Specific (secondary) granules appear first in myelocytes.
- C) Metamyelocytes have kidney-shaped nuclei and cannot divide.
- D) Precursors have lobulated nuclei.
- E) Band cells are almost mature granulocytes but lack fully segmented nuclei.

Ans: D

Q14. Which of the following statements about granulopoiesis is **WRONG**?

- A) Neutrophils circulate in blood for several days after maturation.
- B) Promyelocytes are the first stage to contain azurophilic (primary) granules.
- C) Myelocytes are the first stage to contain secondary (specific) granules.
- D) Metamyelocytes have kidney-shaped nuclei and are no longer capable of cell division.
- E) Band cells are nearly mature granulocytes with a U- or band-shaped nucleus.

Ans: A

Q15. The correct order for hematopoiesis in fetus:

- A) Thymus-bone marrow-liver
- B) bone marrow - yolk sac -liver
- C) yolk sac - spleen,liver - bone marrow
- D) liver ,spleen - yolk sac - bone marrow

Ans: C

Q16. The correct order for Polymorphonuclear neutrophils (PMN) maturation is:

- A) promyelocyte>myelocyte>metamyelocyte> band cell ›segmented cell ›myeloblast
- B) myelocyte> metamyelocyte> promyelocytes› band cell ›segmented cell ›myeloblast
- C) myelocyte>metamyelocyte> band cell› promyelocytes›segmented cell ›myeloblast
- D) myeloblast>promyelocyte>myelocyte>metamyelocyte > band cell ›segmented cell

Ans: D

Q17. One of the precursors in granulopoiesis is the largest and begins synthesizing of Azurophilic:

- A) myeloblast
- B) myelocyte
- C) metamyelocyte
- D) Promyelocyte

Ans: D

Q18. One of the following stains is used to detect reticulocytes:

- A) Hematoxylin
- B) Brilliant cresyl blue
- C) Eosin
- D) Black ink

Ans: B

Q19. The correct order of erythropoiesis:

A) Proerythroblast-Basophilic erythroblast-Normoblast-Polychromatophilic erythroblast-Reticulocyte-Erythrocyte

B) Proerythroblast-Basophilic erythroblast-Orthochromatophilic erythroblast-Polychromatophilic erythroblast-Reticulocyte-Erythrocyte

C) Basophilic erythroblast-Orthochromatophilic erythroblast-Proerythroblast - Polychromatophilic erythroblast-Reticulocyte-Erythrocyte

D) Proerythroblast-Basophilic erythroblast-Polychromatophilic erythroblast-Normoblast-Reticulocyte-Erythrocyte

E) Basophilic erythroblast-Orthochromatophilic erythroblast-Proerythroblast-Polychromatophilic erythroblast-Reticulocyte-Erythrocyte

Lymphatic System

Q1: Which of the following characteristics is the least value to distinguish between spleen and lymph nodes:

- A) Blood sinusoids
- B) Fibroblasts in capsule and trabaecule
- C) Small dark round nucleus cells
- D) Subcapsular sinus

Ans: B

Q2: which of the following isn't made of reticular framework:

- A) bone marrow
- B) Thymus
- C) Spleen
- D) lymph node

Ans: B

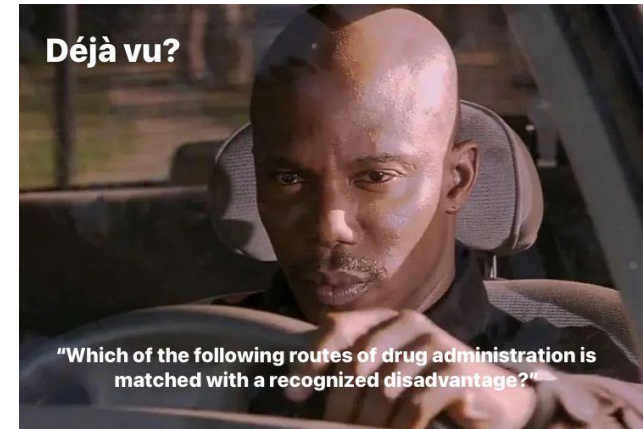
Q3: Which of the following characteristics is the least value to distinguish between spleen and lymph nodes:

- A) Blood sinusoids
- B) Lymphatic follicles
- C) Small dark round nucleus cells
- D) Subcapsular sinus

Ans: B

Q4: Which of the following characteristics is the least value to distinguish between spleen and lymph nodes:

- A) High endothelial venules
- B) Afferent lymphatic vessels at capsule
- C) Lymphatic sinuses
- D) Stromal reticular tissue



Ans: D

Q5: Which of the following features is characteristic of lymph nodes:

- A) Cortex
- B) Afferent vessels
- C) Medulla
- D) Sinuses
- E) Lobes

Ans: B

Q6: Which of the following characteristics is the least value to distinguish the spleen from **thymus**:

- A) Activated B cells
- B) Fibroblasts in capsule and trabeculae
- C) Endothelial cells with tight junctions and thick basement membranes
- D) Reticular epithelial cells

Ans: C

Q7: Where can you find T lymphocytes in spleen:

- A) Primary follicles
- B) Splenic cords (Billroth's cords)
- C) Splenic sinusoids
- D) Periarteriolar lymphatic sheaths (PALS)
- E) Germinal centers (Malpighian corpuscles)

Ans: D

Q8: Wrong about the lymphatic system:

- A) Primary follicles form only when stimulated by an antigen
- B) Primary lymphatic organs are the sites for production, maturation & selection
- C) Secondary lymphatic organs are the sites for encountering pathogens
- D) Macrophages attack the pathogen & present it to secondary lymphatic organs

Ans: A

Q9: One of the following is mismatched:

- A) Follicular dendritic cell – medulla
- B) Antigen presenting cells –cortex and medulla
- C) T lymphocytes –inner cortex
- D) B lymphocytes –outer cortex
- E) Plasma cells –medullary cords

Ans: A

Q10: What of the following is mainly found in the primary follicles?

- A) Unstimulated B lymphocytes
- B) Activated B lymphocytes
- C) T lymphocytes
- D) Plasma cells

Ans: A

Q11: Which of the following is wrong regarding spleen?

- A) PALS are tightly packed T cells arranged in cylindrical sheaths around central arterioles
- B) Splenic cords consist of all cells between the sinusoids in the red pulp
- C) Marginal zone sinuses are directly located between the white and red pulp
- D) Central arterioles will branch into short straight penicillar arterioles as they leave white pulp
- E) Stave cells are connected by special intracellular junctions

Ans: E

Q12: Which of the following is false regarding thymic epithelial cells?

- A) They are part of the blood-thymic barrier
- B) They produce hormones for maturation and differentiation of T cells
- C) They have MHC I and MHC II
- D) They can present tissue specific antigens
- E) They are connected by their processes by tight junctions

Ans: E

Check the following statements and answer the question after it:

- 1) IgA will be transported to the lumen to get rid of antigen
- 2) Dendritic cells will capture antigens and present processed antigen to T helper cells
- 3) Antigens would bind M cells and undergo transcytosis into intraepithelial pocket
- 4) B lymphocytes are activated by T helper cells to produce IgA

Q13: Which of the following is the correct order of M cells function in immunity?

Ans: 3, 2, 4, 1

الحمد لله

اللهم إني أستودعك ما قرأت وما حفظت وما تعلمت،
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Corrections from previous versions:

Versions	Slide # and Place of Error	Before Correction	After Correction
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V1 → V2			