PathMD™: Board Review Letter

Author: Philip Ferguson, M.D. **Peripheral Blood – Part 1** Volume 1, Number 12

1. The images for Case #1 on the website are characteristic of which of the following:
   A. Metamyelocytes
   B. Bands
   C. Normal PMNs
   D. Pseudo Pelger-Huet cells
   E. Chronic myelogenous leukemia

2. Which of the following is the best diagnosis given the findings in the peripheral smear in Case #2 on the website:
   A. HbSS disease
   B. HbCC disease
   C. β-thalassemia
   D. Iron deficiency anemia
   E. Malaria

3. An amino acid substitution of lysine for glutamic acid in position 6 of the β hemoglobin molecule is characteristic of which Hb?
   A. Hb S
   B. Hb C
   C. Hb E
   D. β thalassemia
   E. Hb H

4. A 30 y/o Asian female is found to have a homozygous hemoglobinopathy. She has a hypochromic anemia and splenomegaly. Which of the following is the most likely the etiology?
   A. Hb S
   B. Hb SC
   C. Hb E
   D. Hb D
   E. β thalassemia

5. An otherwise healthy 50 y/o white female is undergoing a transthoracic echocardiogram to evaluate possible mitral regurgitation. To suppress the gag reflex lidocaine spray is used liberally on the posterior pharynx. As the procedure begins the patient is noted to become short of breath and anxious. Immediately the procedure is stopped and the physician notes the patient's lips are blue. A blood gas is drawn, which shows a pO_2 = 98 mmHg and a pCO_2 = 30 mmHg. The best treatment of the patient would be?
   A. Supplemental oxygen by face mask and other supportive therapy
   B. Start unfractionated heparin or low molecular weight heparin
   C. Give methylene blue
   D. Consult surgery for an acute development of a right to left shunt
   E. None of the above

6. The best diagnosis for the peripheral smear illustrated in Case #3 on the website is:
   A. Iron deficiency anemia
   B. Hereditary spherocytosis
   C. Thalassemia
   D. Hb Bart's disease
   E. Elliptocytosis

7. When considering hemoglobin electrophoresis on cellulose acetate at pH 8.4, which of the following is the correct order of Hb migration from the cathode towards the anode?
    A. A F S C
    B. C S A F
    C. S C A F
    D. S C F A
    E. C S F A

8. Given the findings in the peripheral blood smear in Case #4 on the website, which of the following is the best diagnosis:
    A. Chediak Higashi
    B. Reactive changes
    C. Iron Deficiency Anemia
    D. May-Hegglin Anomaly
    E. None of the above

9. A 65 y/o male patient presents with increasing fatigue, a WBC count of 65K, and the findings illustrated on the peripheral blood smear in Case #5 on the website. The most likely diagnosis is:
    A. AML
    B. ALL
    C. CML
    D. Acute infection
    E. MDS

10. Which of the following is the cause of target cells found in HbCC disease?
    A. Collection of Hb in the thicker areas of the cell as water evaporates
    B. Loss of Hb, which causes an increase in the surface to volume ratio
    C. Decrease in membrane lipid loss
    D. Increase free cholesterol in the plasma

11. A 70 y/o male presents with a WBC count of 2.1, Hb of 8.7 g/dL, and plts. of 88K. There is no evidence of hepatosplenomegaly or lymphadenopathy. Given this history and the image findings on the website for Case #6 (blast percentage = 17%), which of the following is the most likely diagnosis?
    A. AML
    B. CML
    C. ALL
    D. MDS
    E. LPL
12. Which of the following methods is most accurate in quantitating HbA_2 (important in β-thalassemia)?
    A. High Performance Liquid Chromatography (HPLC)
    B. Electrophoresis on cellulose acetate
    C. Ion-Exchange chromatography
    D. Flow cytometry

13. At what age is the best time to screen for sickle cell disorders?
    A. At birth
    B. 2 months
    C. 6 months
    D. > 1 year of age

Notes for question set:[1]

[1] PathMD strives for the highest quality and accuracy. However, the *PathMD: Board Review Letter* is for review purposes and not meant for clinical decision making. It should not be used in place of review of primary reference texts and the current medical literature. If inaccuracies are identified, please notify us so that a correction may be published. (info@PathMD.com)

