

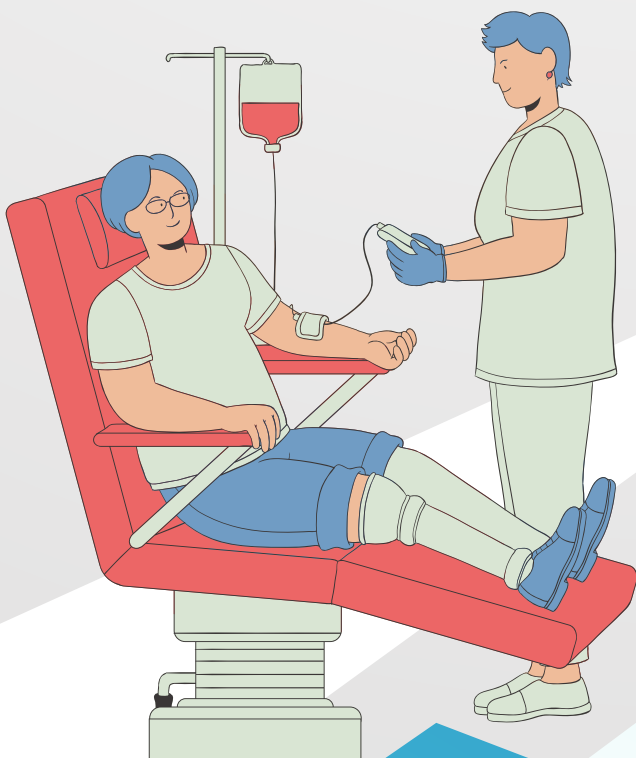


Scientific team

# pathology quiz

## first 3 lectures

**Dr.Duaa**





Scientific team

1. A 16-year-old boy has had a low energy level for as long as he can remember. On physical examination he has a palpable spleen tip. A CBC shows Hgb of 8.8 g/dL, Hct 24.1%, MCV 65 fL, platelet count 187,000/microliter, and WBC count 7400/microliter. His serum ferritin is 3740 ng/mL. A bone marrow biopsy is performed and on microscopic examination reveals a myeloid:erythroid ratio of 1:4, and there is 4+ stainable iron. Which of the following is the most likely diagnosis?

- A. G6PD deficiency
- B. Beta-thalassemia
- C. Sickle cell anemia
- D. Hereditary spherocytosis
- E. malaria

2. A 43-year-old male patient reported a history of change in urine colour, especially when he wakes up. His labs revealed hemoglobinemia, hemosiderinuria, and hemoglobinuria, with elevated reticulocyte count. Flow cytometry studies showed that RBCs lack surface makers such as complement inhibitors CD59 and CD55. The most likely underlying pathogenesis is:

- a. There is low NADPH and thus increased oxidative stress causing hemolytic anemia
- b. There is a single point mutation in the B-globin gene, converting glutamic acid into valine
- c. Can be caused by infectious agents such as parvovirus B19, HIV, EBV, Hepatitis C virus
- d. Abnormal spectrin and ankyrin molecules causing defects in RBC's membrane
- e. There is an acquired somatic (non-germline) mutation in the X-linked (PIGA) gene

3. A 20-year-old woman has had worsening fatigue for the past year. On examination her mucous membranes are pale. No hepatosplenomegaly is present. Her CBC shows a Hgb of 7.1 g/dL, Hct 19.9%, MCV 67 fL, platelet count 190,000/uL, and WBC count 5,400/ul. There is no history of drug ingestion. Which of the following is the most likely etiology for her findings:

- A. Cobalamin deficiency
- B. G6PD deficiency
- C. Folate deficiency
- D. Iron deficiency
- E. Von Willebrand factor deficiency



Scientific team

4-A 25-year-old man is given anti-malarial prophylaxis for a trip to West Africa. Over the next week he develops increasing fatigue. On physical examination there are no abnormal findings. Laboratory studies show a hematocrit of 30%. Examination of his peripheral blood smear shows red blood cells with numerous Heinz bodies. There is a family history of this disorder, with males, but not females, affected. Which of the following is the most likely diagnosis?

- A. Beta-thalassemia
- B. Sickle cell anemia
- C. Alpha-thalassemia
- D. Hereditary spherocytosis
- E. G6PD deficiency

5-A 10-month-old baby presented to the pediatric clinic with jaundice and hepatosplenomegaly. CBC and blood smear showed microcytic hypochromic anemia with poikilocytosis, anisocytosis, and target cells. HbA2 is increased. Examination revealed skeletal deformities, growth delay, and a "hair on end" appearance of the skull on the X-ray. The most serious complication for this patient is?

- a. Vaso-occlusive crises with acute chest syndrome and severe bone pain with necrosis
- b. Increased risk of infection with encapsulated bacteria such as pneumococci & H. influenza
- c. They develop iron overload leading to secondary hemochromatosis & heart failure
- d. There is no serious complication as they may need occasional transfusions on demand
- e. They develop neurological manifestations, such as paresthesia, and balance disorders



Scientific team

6-A 72-year-old man has been feeling tired for the past 8 months. On physical examination there are no abnormal findings. Laboratory studies show Hgb 10.4 g/dL, Hct 30.3%, MCV 72 fL, platelet count 239,000/uL, and WBC count 7500/uL with automated differential count of 70.1% grans, 18.8% lymphs, and 11.1% monos. His total bilirubin is 1.0 mg/dL. Which of the following morphologic findings is most likely to be seen on his peripheral blood smear?

- A. Fragmentation
- B. Many nucleated forms
- C. Hypochromasia
- D. Spherocytosis
- E. Howell-Jolly bodies

7-A 58-year old male patient comes to the ER with shortness of breath and fatigue. One month ago he underwent mechanical aortic valve replacement. Peripheral bold showed helmet cells and schistocytes. Which of the following findings is most likely to be seen in this patient?

- A. Low ferritin
- B. Low platelets
- C. Elevated haptoglobin
- D. Elevated LDH
- E. Low unconjugated bilirubin

Q	Answers	×
	1.B	
	2.E	
	3.D	
	4.E	
	5.C	
	6.C	
	7.D	