
By

Gene Gulati, Ph.D., SH(ASCP)
Conflict of Interest

None
Plan for the Course

**Review** blood smears, identify abnormal morphologic findings, and relate them to appropriate clinical condition(s)

**Part 1**: Red cell and platelet abnormalities

- 10 minutes interval

**Part 2**: White cell abnormalities

- Audience interaction encouraged throughout the course
Format of Presentation

A. Present an image of a blood smear (faculty)
B. Identify the abnormal findings
   (audience +/- faculty)
C. Summarize the pertinent abnormalities
   (faculty)
D. Relate the findings to appropriate clinical condition(s) (audience and faculty)
   (with the use of audience response system)
Case 1
Case 1

**Question:** Select the most likely clinical condition associated with the morphologic findings seen in this blood smear:

A. Thalassemia minor  
B. Thalassemia major  
C. Iron deficiency anemia  
D. Anemia of chronic disease
Case 1: Answer
Case 2
Case 2

Question: The most likely clinical condition associated with the morphologic findings of this blood smear of a 28 year old male with MCV of 70 fL is:

A. Thalassemia minor  
B. Thalassemia major  
C. Anemia of chronic disease  
D. Metastatic carcinoma
Case 2: Answer
Case 3

Question: The red cell morphology seen in this blood smear of an adult is most consistent with:

A. G-6-PD deficiency
B. Hereditary stomatocytosis
C. Autoimmune hemolytic anemia
D. status post packed red cell transfusion
Case 3: Answer
Case 4
Case 4

**Question:** The morphologic findings seen in this blood smear are most consistent with:

A. Folate deficiency  
B. Iron deficiency  
C. Copper deficiency  
D. Zinc deficiency
Case 4: Answer
Case 5

Question: The morphologic findings seen in this blood smear of a 14 year old male with MCV of 90 fL are most consistent with:

A. Sickle cell trait
B. Sickle cell anemia
C. Sickle-beta-thalassemia
D. Sickle-alpha-thalassemia
Case 5: Answer
Case 6

Question: The morphologic findings seen in this blood smear of a 33 year old female with MCV of 89 fL are most consistent with:

A. Sickle cell trait
B. Sickle cell anemia
C. Sickle-thalassemia
D. Hemoglobin SC disease
Case 6: Answer
Case 7

Question: The morphologic findings seen in this blood smear are most consistent with:

A. Hemoglobin SC disease
B. Hemoglobin C disease
C. Hemoglobin D disease
D. Hemoglobin E disease
Case 7: Answer
Case 8

Question: The morphologic finding of this blood smear is most consistent with:

A. Hereditary elliptocytosis
B. Hereditary pyropoikilocytosis
C. Renal disease
D. Liver disease
Case 8: Answer
Case 9
Case 9

Question: The morphologic finding of this blood smear is most consistent with:

A. Sickle cell crisis
B. Hemoglobin SC disease
C. Hemolytic crisis in hereditary spherocytosis
D. Oxidant-induced hemolysis in a G6PD deficient patient
Case 9: Answer
Case 10

Question: The morphologic abnormality seen in this blood smear is most consistent with:

A. Thrombotic thrombocytopenic purpura (TTP)
B. Disseminated intravascular coagulation (DIC)
C. Senile purpura
D. March hemoglobinuria
Case 10: Answer
Case 11

Question: The findings of this blood smear of a 50 year old female with hemoglobin of 10 g/dL and platelet count of $750 \times 10^3$/uL are most consistent with:

A. Thrombocytosis (reactive)
B. Thrombocythemia
C. Polycythemia vera
D. Chronic myeloproliferative neoplasm, unclassifiable
Case 11: Answer
Case 12

**Question:** The morphologic abnormality seen in this blood smear is seen primarily in the blood specimen anticoagulated with:

A. Ethylenediaminetetraacetate (EDTA)
B. Sodium citrate
C. Sodium heparin
D. Lithium heparin
Case 12: Answer
References

   by Gulati, G and Caro, M (ASCP Press, 2007) *

2. Color Atlas of Hematology
   Editor: Glassy, EF (CAP, 1998)

   by Gulati, G (ASCP Press, 2009)*

4. Case Studies in Hematology and Coagulation
   Editors: Gulati G, Fillicko-O’Hara J, and Krause J
   (ASCP Press, 2012)*
   * Available for purchase at ascp.org
The Power of Peripheral Blood Smears: Apparent Diagnostic Clues (Part 2) (October 19, 2011)

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Case 13

Question. A significant increase in the number of white cells seen in this blood smear of a 19 year old female is most consistent with:

A. Bacterial infection
B. Viral infection
C. Parasitic infection
D. Rickettsial infection
Case 13: Answer
Case 14
After albumin
Case 14

Question: The findings of this blood smear of a 68 year old male are most consistent with:

A. Chronic lymphocytic leukemia
B. Acute lymphoblastic leukemia
C. Prolymphocytic leukemia
D. Leukemic phase of large cell lymphoma
Case 14: Answer
Case 15

Question: The findings of this blood smear of a 65 year old male are most consistent with:

A. Chronic lymphocytic leukemia
B. Prolymphocytic leukemia
C. Hairy cell leukemia
D. Plasma cell leukemia
Case 15: Answer
**Case 16**

**Question:** The findings of this blood smear of a 50 year old male are most consistent with:

A. Monocytosis  
B. Monocytic leukemia  
C. Hairy cell leukemia  
D. Plasma cell leukemia
Case 16: Answer
Case 17

Question: The findings of this blood smear of a 55 year old female, with blasts accounting for 10% of all white cells, are most consistent with:

A. Acute myeloblastic leukemia
B. Acute promyelocytic leukemia
C. Chronic myelogenous leukemia (accelerated)
D. Granulocytic leukemoid reaction
Case 17: Answer
Case 18

Question: The findings of this blood smear of a 28 year old male are most consistent with:

A. Lymphocytosis
B. Atypical lymphocytosis
C. Chronic lymphocytic leukemia
D. Acute leukemia
Case 18: Answer
Case 19
Case 19

Question: The findings of this blood smear are most consistent with:

A. Acute lymphoblastic leukemia
B. Acute myeloblastic leukemia
C. Acute promyelocytic leukemia
D. Acute leukemia
Case 19: Answer
Case 20

**Question:** The findings of this blood smear are most consistent with:

A. Acute myeloblastic leukemia  
B. Acute myelomonocytic leukemia  
C. Acute promyelocytic leukemia  
D. Reactive monocytosis
Case 20: Answer
Case 21

Question: The findings of this blood smear of a 30 year old female are most consistent with:

A. Acute leukemia
B. Acute monocytic leukemia
C. Acute promyelocytic leukemia
D. Large Granular lymphocytic leukemia
Case 21: Answer
Case 22

Question: The findings of this blood smear of a 42 year old female are most consistent with:

A. Hairy cell leukemia
B. Plasma cell leukemia
C. Lymphoblastic leukemia
D. Megakaryoblastic leukemia
Case 22: Answer
Case 23

**Question:** The findings of this blood smear of an 80 year old female are most consistent with:

A. Myelofibrosis
B. Leukemoid reaction
C. Chronic myelogenous leukemia
D. Chronic myelomonocytic leukemia
Case 23: Answer
Case 24

Question: The findings of this blood smear of a 65 year old male are most consistent with:

A. B12 deficiency
B. Folate deficiency
C. Myelodysplastic syndrome
D. Chronic myeloproliferative neoplasm
Case 24: Answer
References


2. Color Atlas of Hematology
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   by Gulati, G (ASCP Press, 2009) *

4. Case Studies in Hematology and Coagulation
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