

PathMD™: Board Review Letter

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Hematopathology - Part 4

Volume 1, Number 43

Case #1 Image for this case shows a positive fusion probe by FISH. Based on the image and associated information, what is the best diagnosis?

- A. AML-M2
- B. AML-M3
- C. AML-M5
- D. CML
- E. Precursor B ALL

Case #2 The images for this case come from a 56-year-old Hispanic male who presents an otolaryngologist with a nasal mass. A surgical biopsy was performed, and representative images including immunohistochemical stains are shown. Based on the morphology and special stains, what is the best diagnosis?

- A. Plasmacytoma
- B. Blastic NK cell lymphoma
- C. Extranodal NK/T-cell lymphoma, nasal type
- D. Wegener's granulomatosis
- E. Diffuse large B cell lymphoma

Case #3 The images of peripheral blood and a bone marrow biopsy come from a 25-year-old African-American female who presents with a WBC of 65, 000, which is composed of 90% neutrophils. The patient complains of B symptoms, but after extensive work of no infectious theology is found. Appropriate cytogenetic, FISH, and PCR studies were performed with no abnormalities. A bone marrow biopsy was performed and revealed no evidence of abnormal maturation in any of the hematopoietic lineages. The patient has a normal hemoglobin, in the monocytes are $<1 \times 10^9$. Based on these findings, was most likely diagnosis?

- A. Leukamoid reaction
- B. Chronic myelogenous leukemia
- C. Chronic neutrophilic leukemia
- D. Atypical chronic myelogenous leukemia
- E. Myelodysplastic syndrome, unclassifiable

Case #4 A 29-year-old African-American patient is found to have a peripheral eosinophilic count of 8000/microliter. The peripheral blood and bone marrow are shown for review. Conventional cytogenetics are normal, and appropriate FISH studies are normal. Flow cytometry was performed, and showed no monoclonal B-cell or aberrant T-cell population. Extensive allergy and infectious disease workup was negative. Based on these findings, what is the best diagnosis?

- A. Chronic eosinophilic leukemia
- B. Hypereosinophilic syndrome
- C. Atypical chronic myelogenous leukemia
- D. Chronic myelogenous leukemia
- E. Cannot be determined with the given information

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Follow-up question Based on the answer for case #4, what is the most important follow-up test?

- A. Conventional cytogenetics
- B. FISH for BCR:ABL
- C. FISH for FIP1L1:PDGR-alpha
- D. Flow cytometry for abnormal expression of myeloid antigens
- E. None of the above

Case #5 The blood smear shown in this case comes from a 62-year-old male with a white count of 55,000. Based on the findings, what is the most likely flow cytometry immunophenotype?

- A. Positive: CD19, bright CD20, CD5 Negative: CD10
- B. Positive: CD19, dim CD20, CD5 Negative: CD23
- C. Positive: CD19, bright CD20, CD23 Negative: CD5
- D. Positive: CD19, dim CD20, CD5 Negative: CD10
- E. Positive: CD19, bright CD20, CD23 Negative: CD10

Case #6 The bone marrow biopsy in this case comes from a 63-year-old male is found to have a monoclonal IgM serum paraprotein. The patient had symptoms of hyperviscosity and received a plasma exchange. Flow cytometry the bone marrow aspirate showed positivity for CD19, CD20, CD22, CD79a, and CD38. The cells of interest were for negative for CD5, CD10, and CD23. Additional immunohistochemistry stains are shown in the images for this case. Conventional cytogenetics showed a translocation t(9;14)(p13;q32). Based on these findings was the most likely diagnosis?

- A. CLL/SLL
- B. Multiple myeloma
- C. MALT lymphoma
- D. Splenic marginal zone lymphoma
- E. Lymphoplasmocytic lymphoma

Question #1 In a normal 50 y/o adult, what is the expected bone marrow cellularity?

- A. 10%
- B. 25%
- C. 50%
- D. 75%
- E. 100%

Question #2 Which of the following are individually specific markers used in flow cytometry analysis?

- A. CD13
- B. CD34
- C. CD33
- D. Both A and C are correct
- E. All of the above are correct

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Question #3 When examining a bone marrow core (trephine) biopsy, where should immature myeloid elements be localized?

- A. Adjacent to bony trabeculae
- B. Centrally, within the adipose tissue
- C. Surrounding smaller caliber vessels
- D. Both A and C are correct
- E. All of the above are correct

Notes for question set:¹

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