

Challenging Cases in Leukemia

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Co-Chair

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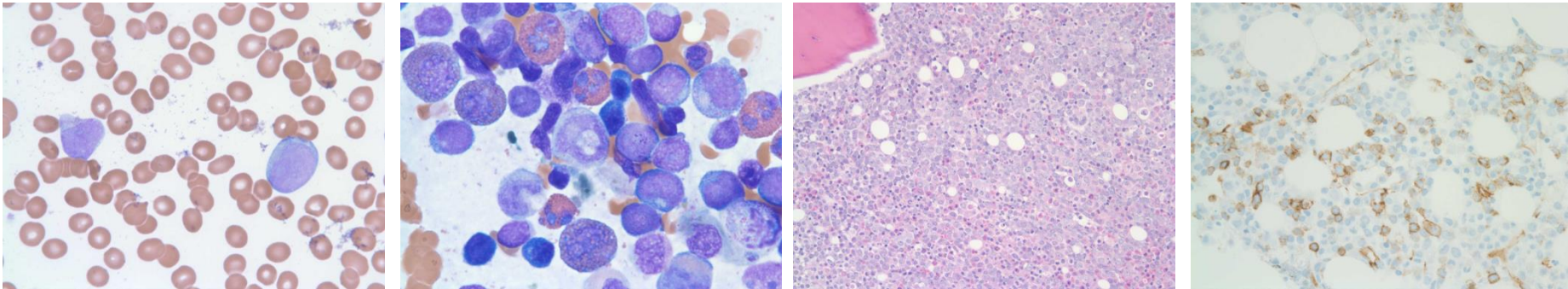
Executive Vice President West Region

St. John Providence Health System

Warren, MI

Acute Myeloid Leukemia

20 year old presents with: CBC which revealed a white blood count of 17,000, hemoglobin of 8gm/dl and platelet count of 37,000 with 88% blasts.



Bone Marrow: Morphology

- Normocellular bone marrow (~70%) showing increased myeloblasts (~60-70% of nucleated cells).

Bone Marrow: Flow Cytometry

- 66% blasts cells with a dim CD45(+)/CD34(+)/dimCD13(+)/CD33(+)/dim HLADR(+) and CD117(+) immunophenotype indicative of acute myeloid leukemia.

Cytogenetics:

- 45~46,X,-Y,t(8;21)(q22;q22),+0~1mar[20].nuc ish 8q22(RUNX1T1x3),21q22(RUNX1x3),(RUNX1T1 con RUNX1x2)[98/100],15q24.1(PMLx2),17q21.1(RARAx2)[200]

MOLCULAR:

NPM Mutation, Cell-based: NOT DETECTED, CEBPA Mutation: NOT DETECTED, C-KIT Mutation, Cell-based: NOT DETECTED, Not Detected for the FLT3 Internal Tandem Duplication (ITD), Not Detected for the FLT3 TKD Mutation, IDH1 exon 4 mutation analysis: NEGATIVE, IDH2 exon 4 mutation analysis: NEGATIVE

FINAL DIAGNOSIS:

- Acute myeloid leukemia with t(8;21)(q22;q22); RUNX1-RUNX1T1.

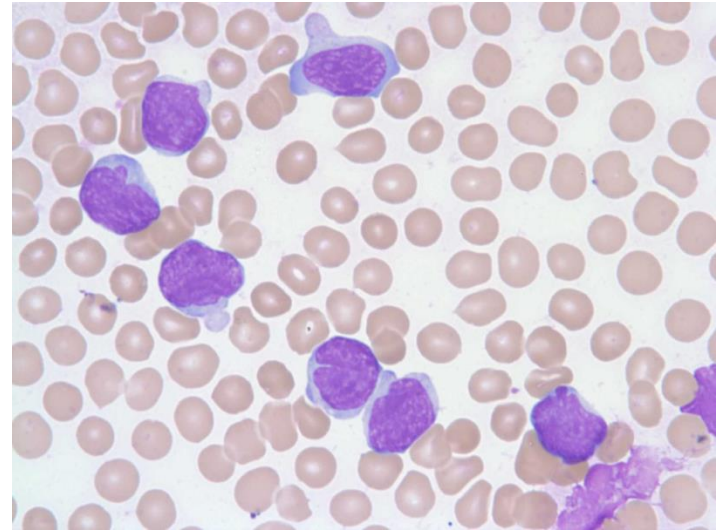
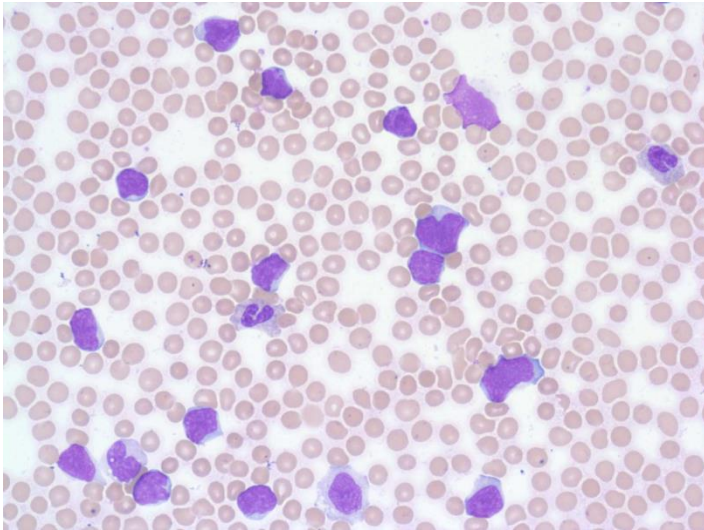
Pathologist: David Wilson, MD, AMERIPATH, Clinical Case: Ruemu E. Birhiray, MD

Acute myeloid leukemia with t(8;21)(q22;q22); RUNX1-RUNX1T1.

- What is the role of Next generation sequence (NGS) testing ?
- Induction regimen ?
- Consolidation regimen ?
- What is the role of Gemtuzumab Ozogomycin ?
- What is the role of autologous or allogenic transplantation

Acute Lymphoblastic Leukemia

- 27 year old presents with lethargy and SOB, and an abnormal CBC, WBC 81,000, hemoglobin of 14.6, and platelet 40,000 with an ANC of 2400 and 70% blasts



- Social and Family History: No Siblings
- Peripheral Blood Flow Cytometry:
 - 85% immature B cells with a dim CD45(+)/CD34(+)/CD19(+)/CD20(+)
 - /CD10(+)/HLADR(+)/CD38(+) and TdT(+)
- **DIAGNOSIS: Acute B-cell lymphoblastic leukemia.**

Adolescents and Young Adult ALL

- What is the optimal Induction regimen ?
- What is the role of Asparaginase ?
- Consolidation and Maintenance regimen ?
- When should allogeneic transplant in first CR (CR1) be considered? What role does MRD monitoring play in decisions for treatment?
- Haplo-identical or cord transplantation ?