Acute Leukemias of Ambiguous Lineage
Testing Algorithm

Diagnostic criteria has not been met for acute myeloid leukemia (AML)

Undifferentiated phenotype

Myeloid lineage is not isolated: CD19+, CD10+, surface CD3+, uniform CD2+, or uniform CD7+

Possible mixed phenotype acute leukemia

Myeloperoxidase/terminal deoxynucleotidyl transferase testing by IHC, flow cytometry, etc

Acute undifferentiated leukemia

B-cell/myeloid phenotype per World Health Organization (WHO) criteria

Mixed-phenotype acute leukemia, B-cell/myeloid, not otherwise specified

Negative FISH results

ALLM / B-Cell Lymphoblastic Leukemia (B-ALL) Monitoring, Minimal Residual Disease (MRD) Detection, Bone Marrow
AMLF / Acute Myeloid Leukemia (AML), FISH, Varies
NGSHM / OncoHeme Next-Generation Sequencing for Myeloid Neoplasms, Varies
Consider IHC for CD10, CD19, CD22, CD79a, Pax5

Positive FISH results

Mixed-phenotype acute leukemia with t(9;22)(q34.1;q11.2); BCR-ABL1
Mixed-phenotype acute leukemia with t(v;11q23.3); KMT2A-rearranged

Acute leukemia, NOT AML, consider:
- B-cell ALL
- T-cell ALL
- Blastic plasmacytoid dendritic cell neoplasm

T-cell/myeloid phenotype per WHO criteria

Mixed-phenotype acute leukemia, B-cell/myeloid, not otherwise specified

Negative FISH results

AMLF / Acute Myeloid Leukemia (AML), FISH, Varies
NGSHM / OncoHeme Next-Generation Sequencing for Myeloid Neoplasms, Varies
T-cell flow panel
Consider IHC for CD3

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