Acute Lymphoblastic Leukaemia

Mansour Mohamed Omer El-Sharief

Course title: Advanced Hematology

MLS-HEMA-324

2019-2020

ACUTE LYMPHOBLASTIC LEUKEMIA (ALL)

- **FAB Classification:**
- **This divides ALL into three groups (L1, L2, and L3) based strictly on morphology.**

L1	**Most common type in childhood.** **Small to intermediate-sized blasts.**
L2	**Most common type in adults.** **Larger, more variable cells with more abundant cytoplasm.**
L3	**Rare (~1–3% of ALL). The cells are characterized by deeply basophilic (blue) cytoplasm with cytoplasmic vacuoles containing lipid.**

Epidemiology

- **Acute lymphoblastic leukemia is the most common malignancy in childhood and represents ~85% of childhood acute leukemias.**
- **It also occurs in adults but is uncommon (~15% of adult acute leukemias).**
- **The highest incidence of ALL is between 1 and 5 years of age.**
- **There is a slight male predominance.**

Lab. Δ of ALL

- **1- CBC:**
- **Anemia**
- **thrombocytopenia**
- **White cell count is variable: it may be high, normal, or occasionally decreased.**
- **Blasts are usually present on blood smear but may be absent.**
- ***2- Serum uric acid and* lactic dehydrogenase may be increased.**

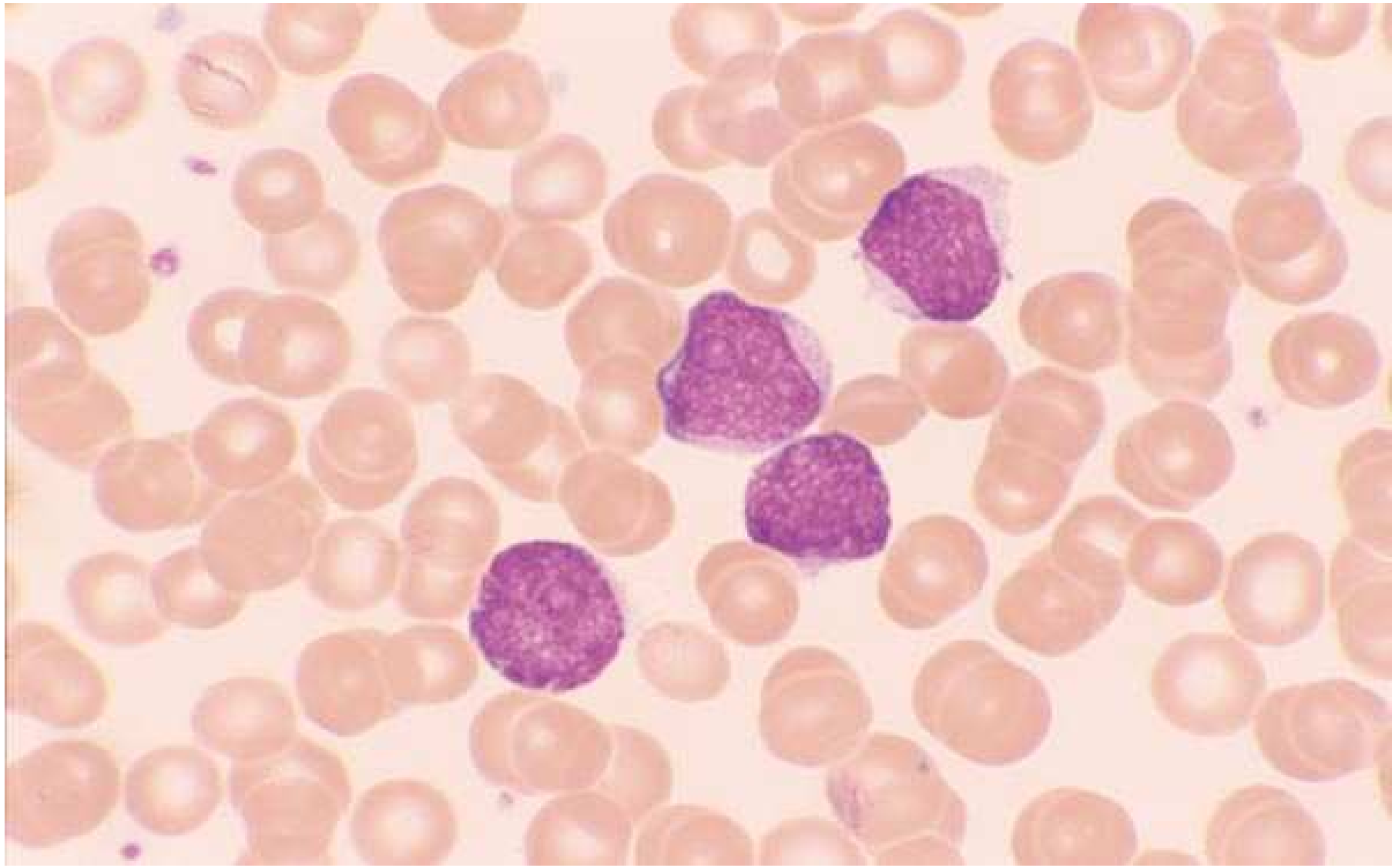
3- Cytochemical stains:

PAS (periodic acid–Schiff): Positive in some cases of ALL.

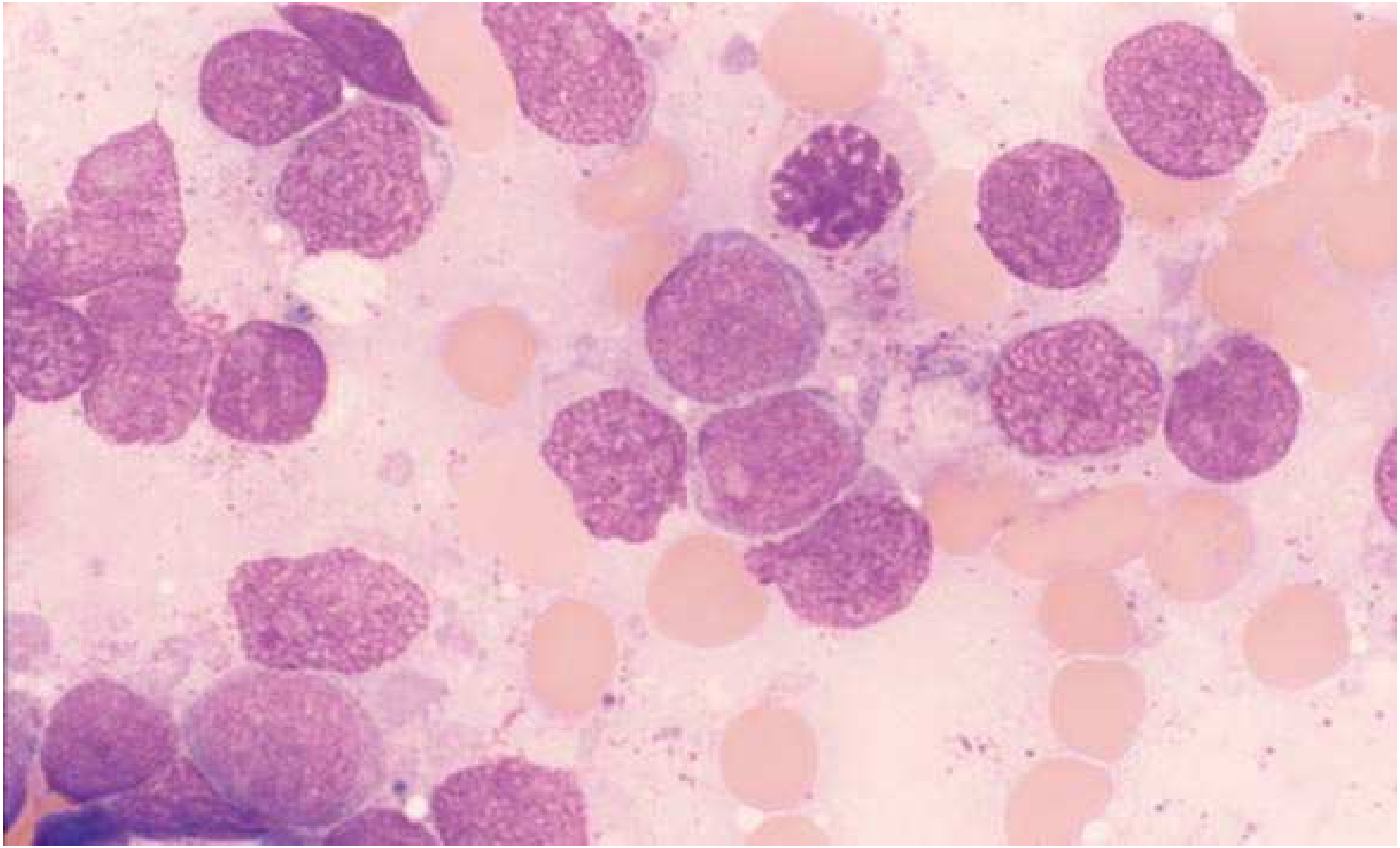
- **Cytogenetics:**
- **Chromosomal alterations are present in ≥75% of cases.**
- **There are usually reciprocal translocations.**
- **e.g. t(12;21), t(9;22) {Philadephia chromosome}, t(1;19), etc.**
- **Immunophenotyping:**
- **It is most useful in identifying myeloid lineage and distinguishing between AML and ALL (based on cell markers).**

- **Molecular Tests:**
- **These can provide evidence of lymphocyte malignancy.**
- **Molecular tests can also be used to detect chromosomal abnormalities not detected on standard cytogenetics.**

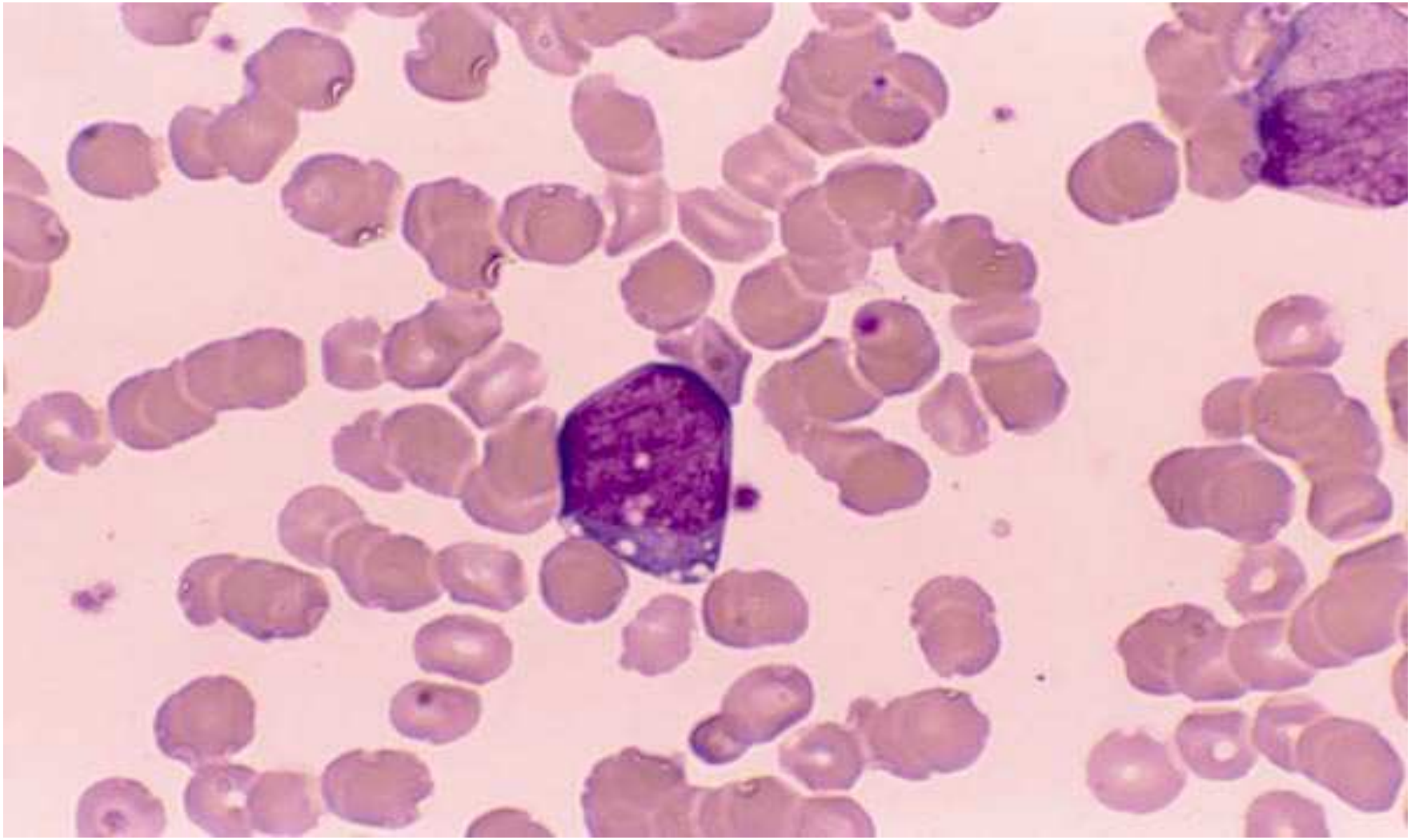
Acute lymphoblastic leukemia (ALL) blood smear



Acute lymphoblastic leukemia (ALL) bone marrow aspirate



Burkitt-cell leukemia (FAB ALL-L3). Basophilic cytoplasm and prominent clear cytoplasmic vacuoles are present



THANK YOU