

Introduction to Leukemias

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- **Definition:**
- Leukemias are clonal diseases that derive from a single cell in the marrow or peripheral lymphoid tissue which has undergone a genetic alteration.
- **Causes:**
- Combination of genetic and environmental factors.
- **1- Genetic factors:**
- Through mutations.

2- Environmental factors:

- **a- Chronic exposure to benzene.**
- **b- Drugs**
- **c- Radiation**
- **d- Infections:**
 - **-Viruses**
 - **-Bacteria**
 - **-Protozoa**

Classification of haematological malignancies

- This is based on *three major characteristics*:
- **-Aggressiveness: Acute vs Chronic**
- **- Lineage: Lymphoid vs Myeloid**
- **- Predominant Site of Involvement: Blood and Bone Marrow vs Tissue.**

Classification of Leukemias Based on Cell Lineage

- This division relates to the first step in differentiation of the hematopoietic stem cell into the CFU-L and the CFU_{GEMM}.
- Lymphoid:
- derived from the CFU-L;
- Myeloid:
- derived from the CFU-GEMM.

- **Evaluation of elevated WBC or abnormal cells on blood smear**

Blood smear (WBCs picture)

Predominance of
immature cells

BM aspirate & biopsy,
cytochemistry,
immunophenotyping,
cytogenetics

AML

ALL

Predominance of mature
cells

BM aspirate & biopsy, LAP
score, Cytogenetics &
phenotyping)

CML, CLL, Other
myeloproliferative

Leukaemoid
reaction

THANK YOU