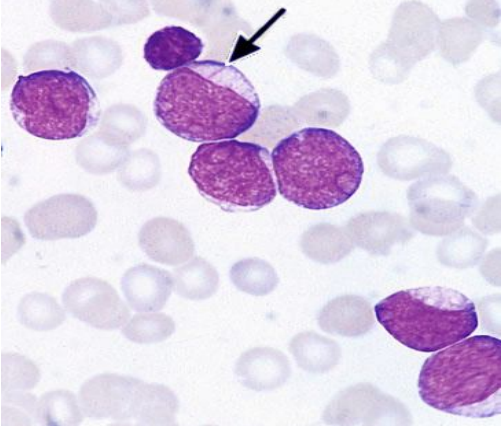
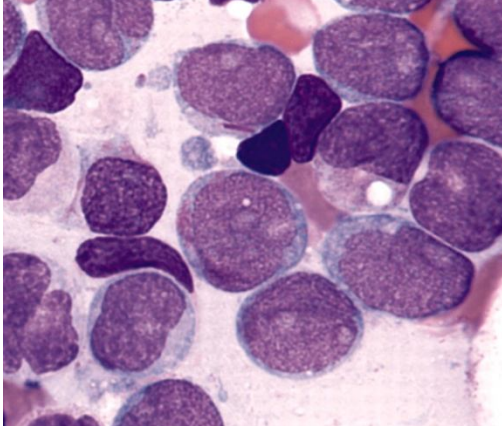
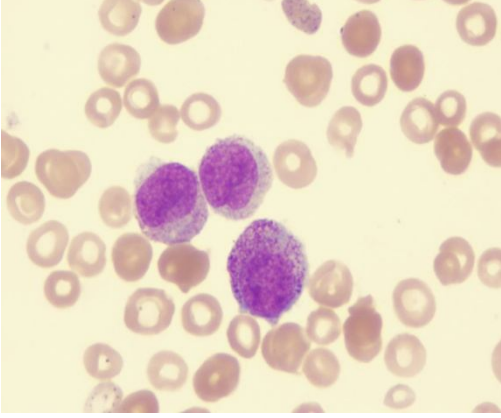
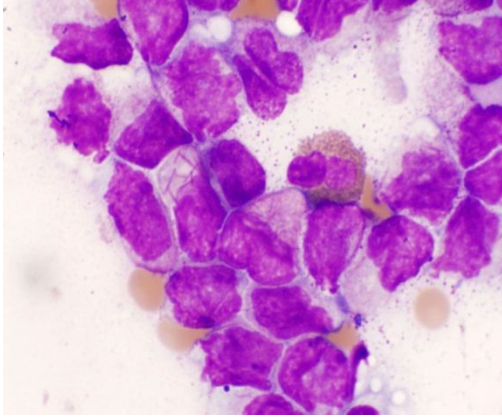
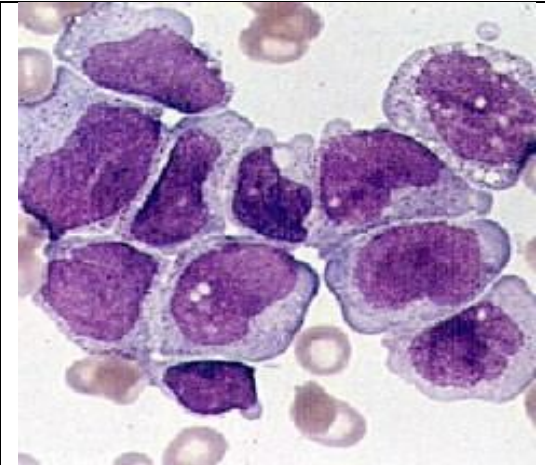
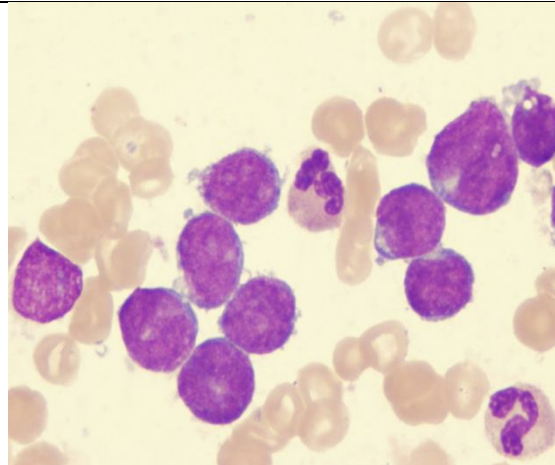


DISORDER	HISTOPATHOLOGIC CHANGES	IMAGES	
<p>ACUTE MYELOGENOUS LEUKEMIA (AML)</p>	<p>PERIPHERAL SMEAR Pancytopenia Circulating blast cells Reticular chromatin with relatively "open" appearance Multiple scattered lucent nucleoli Auer rods within blast cell cytoplasm These are inclusions formed by myeloperoxidase granules</p> <p>MARROW ASPIRATE Blast retention (> 20% blasts) and hypercellularity</p>		
<p>ACUTE PROMYELOCYTIC LEUKEMIA (APML)</p>	<p>PERIPHERAL SMEAR Circulating promyelocytes Large cells (relative to blasts) with polarized red-tinged granules Perinuclear clearing Slightly increased cytoplasm</p> <p>MARROW ASPIRATE Promyelocyte retention (> 20% promyelocytes and blasts) and hypercellularity</p>		

ACUTE LYMPHOBLASTIC LEUKEMIA (ALL)

PERIPHERAL SMEAR

Circulating **blast cells**
IDENTICAL TO AML
Distinguish via FLOW CYTOMETRY
AML: CD13, CD33
B-ALL: CD19, CD22, CD10, TdT
T-ALL: CD3, CD2, CD7, CD5, TdT



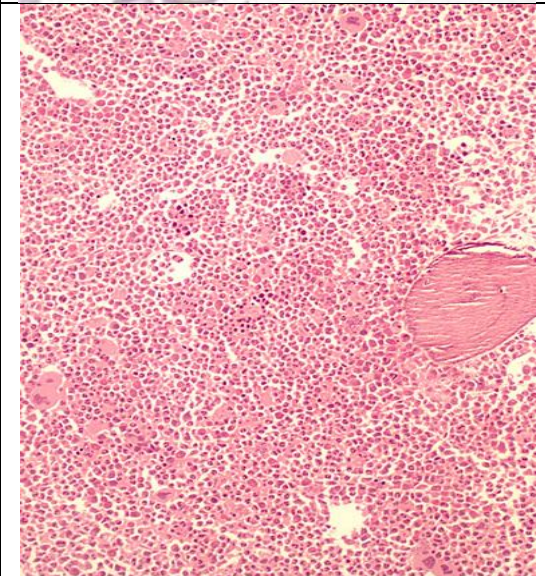
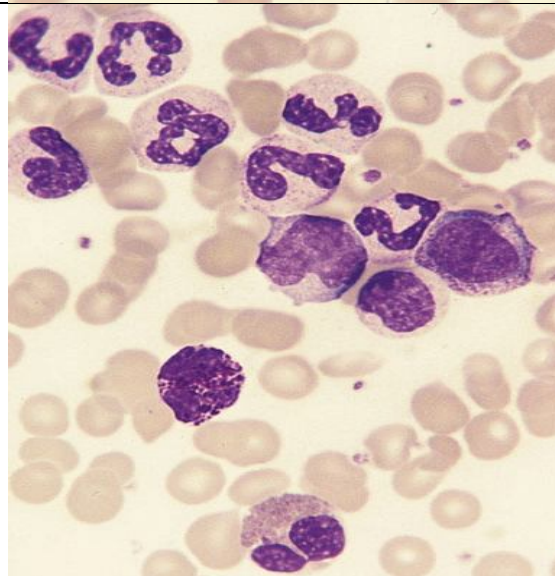
CHRONIC MYELOGENOUS LEUKEMIA (CML)

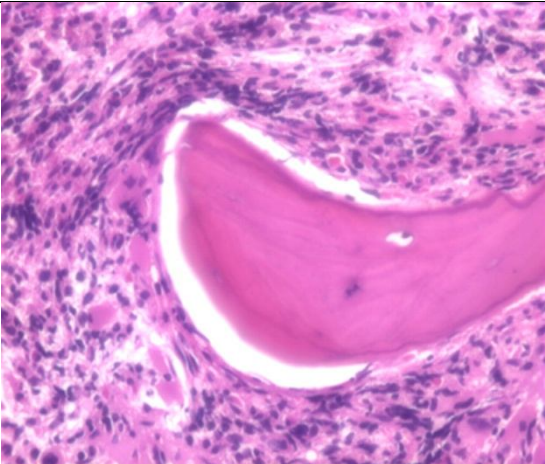
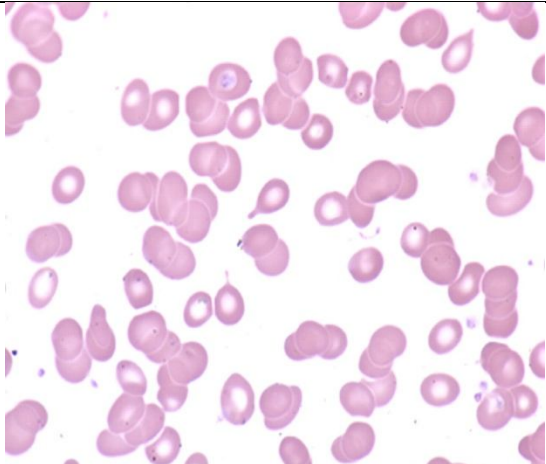
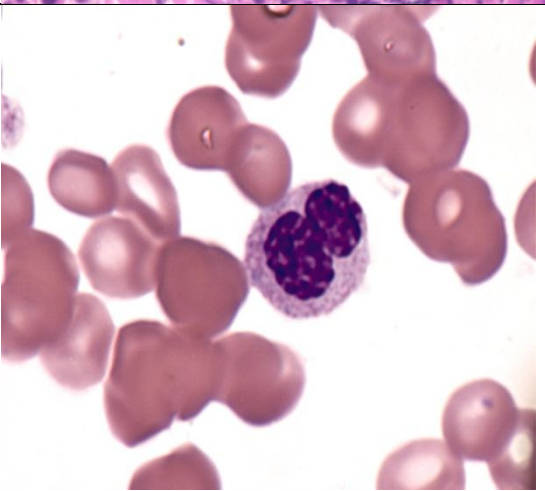
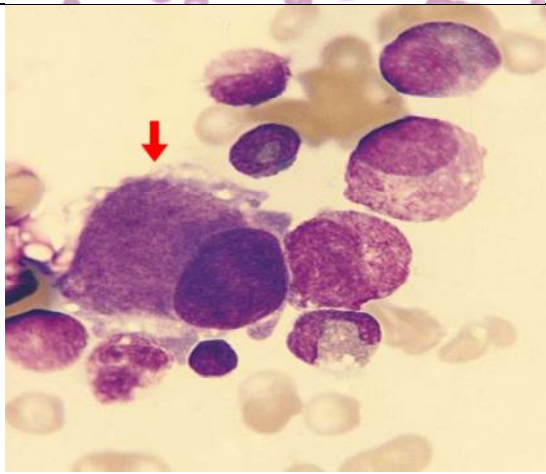
PERIPHERAL SMEAR

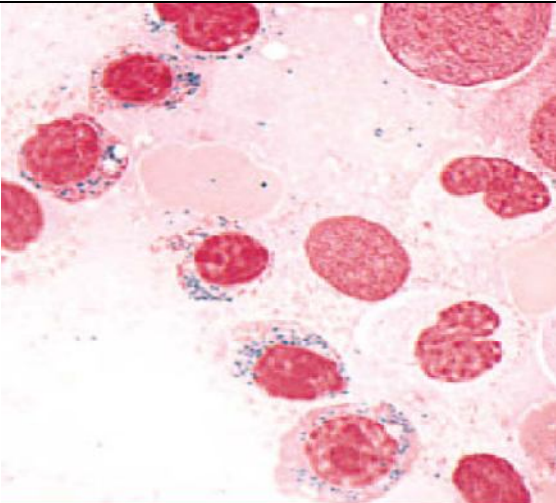
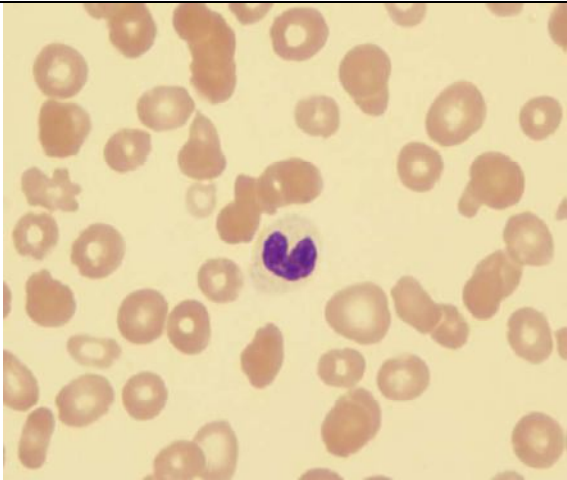
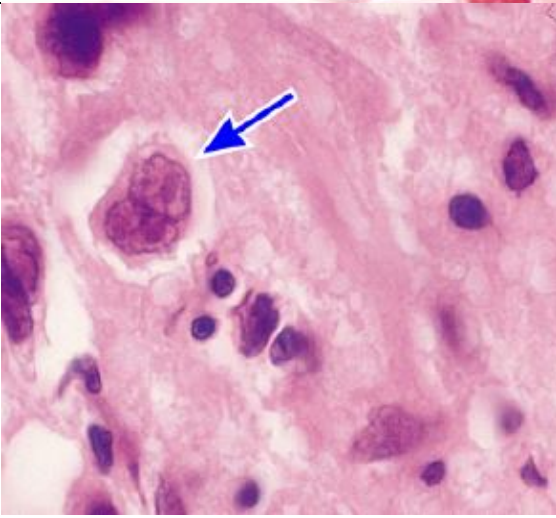
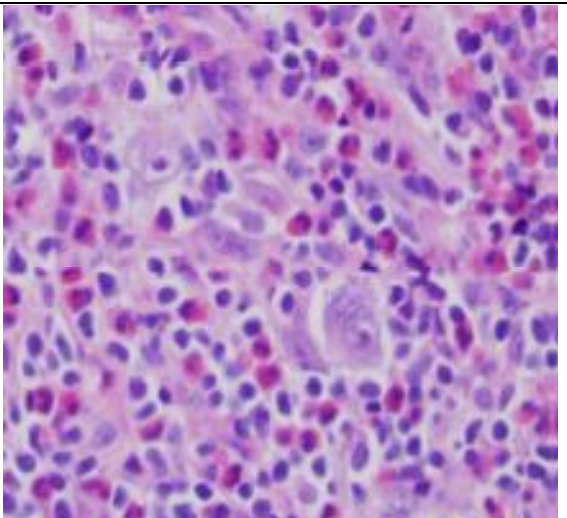
Basophilia
Neutrophil precursors
Thrombocytosis
Nucleated erythroid precursors (late erythroblasts)
Granulocytic precursor cells representing spectrum of maturation

MARROW ASPIRATE

Marrow replacement and hypercellularity
Micromegakaryocytosis



<p>PRIMARY MYELOFIBROSIS (MF)</p>	<p>PERIPHERAL SMEAR Anemia Thrombocytosis (in early disease) Nucleated erythroid precursors Neutrophil precursors Giant platelets Circulating megakaryocytes Dacrocytes</p> <p>MARROW ASPIRATE Hypercellularity Parenchymal fibrosis Exotic megakaryocytes</p>		
<p>MYELODYSPLASTIC SYNDROME (MDS)</p>	<p>PERIPHERAL SMEAR Macrocytic anemia Hypolobated and hypogranular neutrophils (pseudo Pelger-Huet) Anisocytosis Generally anaplastic cells</p> <p>MARROW ASPIRATE and Bx Hypercellularity (ineffective hematopoiesis) Disorganized structure May have excess blasts due to transformation to AML Small hypolobated megakaryocytes Dyserythropoiesis: megaloblastic change in erythroid precursors Ringed sideroblasts</p>		

			
<p>HODGKIN LYMPHOMA (HL)</p>	<p>LYMPH NODE Bx RS cells are diagnostic of HL Large binucleated cells with prominent nucleoli Inflammatory Infiltrate RS cells are surrounded by an inflammatory stroma (eosinophils, small lymphocytes, plasma cells) May demonstrate fibrosis</p> <p>PERIPHERAL SMEAR Normocytic anemia Lymphopenia</p>		

**NON-HODGKIN
LYMPHOMA (NHL)**

FOLLICULAR LYMPHOMA

LYMPH NODE Bx

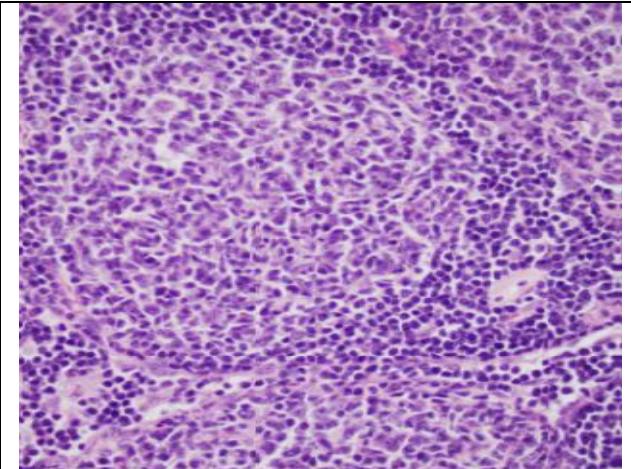
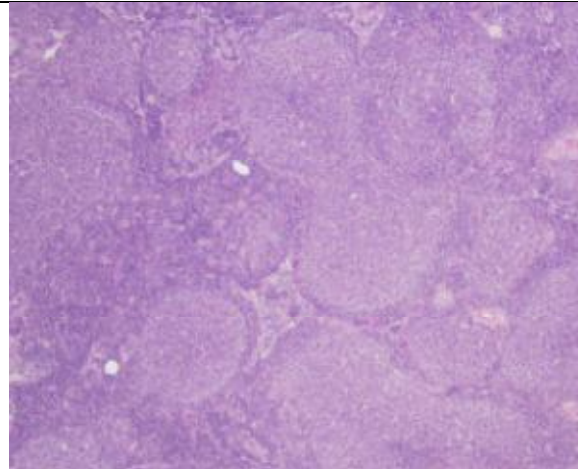
Follicular hyperplasia with
encroachment of maginal zones
Disorganization of normal
architecture

Germinal centers not confined to the
cortical region

Angular B-lymphocytes (NML)

Heterogenous cell size

Lack of Tingible Body Macrophages



DIFFUSE LARGE B-CELL LYMPHOMA

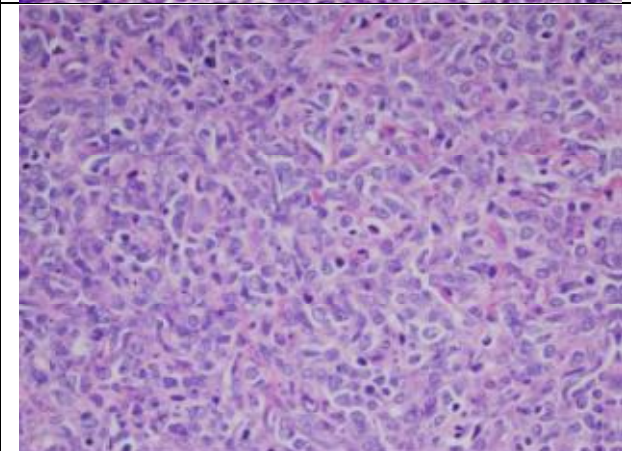
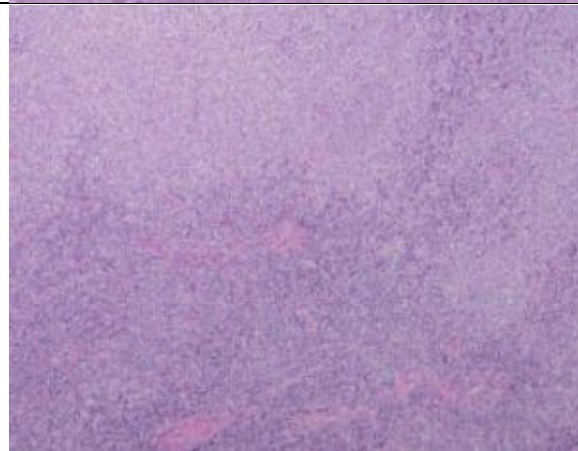
LYMPH NODE Bx

Effacement of normal architecture (no
apparent follicles)

Large B-cells

Homogenous cell size

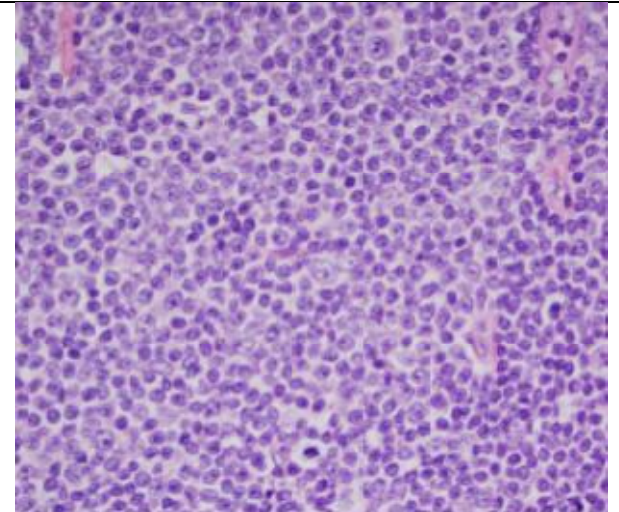
Lack of Tingible Body Macrophages



**CHRONIC
LYMPHOCYTIC
LEUKEMIA (CLL)**

LYMPH NODE Bx

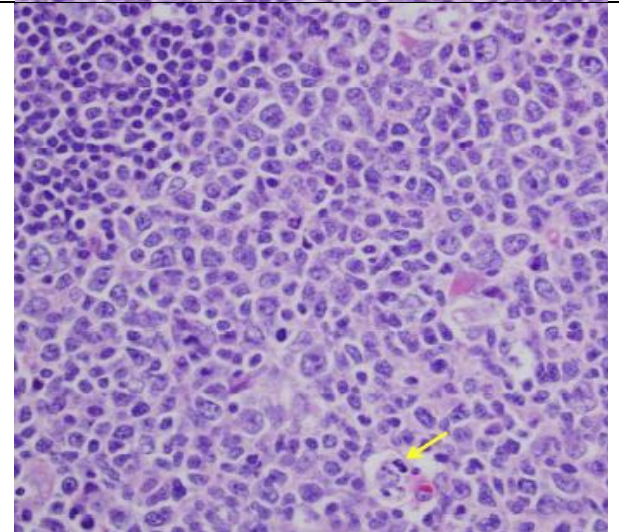
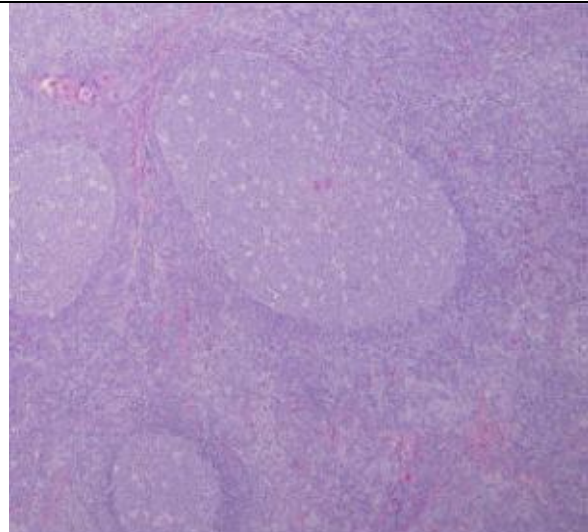
Effacement of node architecture
Infiltration by small clonal B-lymphocytes



**REACTIVE FOLLICULAR
HYPERPLASIA**

LYMPH NODE Bx

Germinal centers demonstrating
normal structure with B-cell and
mantle zones
Presence of Tingible-Body
macrophages



MULTIPLE MYELOMA

MARROW ASPIRATE and Bx

Infiltration of plasma cells (requires > 10% for Dx)

Plasmacytoma (may be extramedullary or osseous)

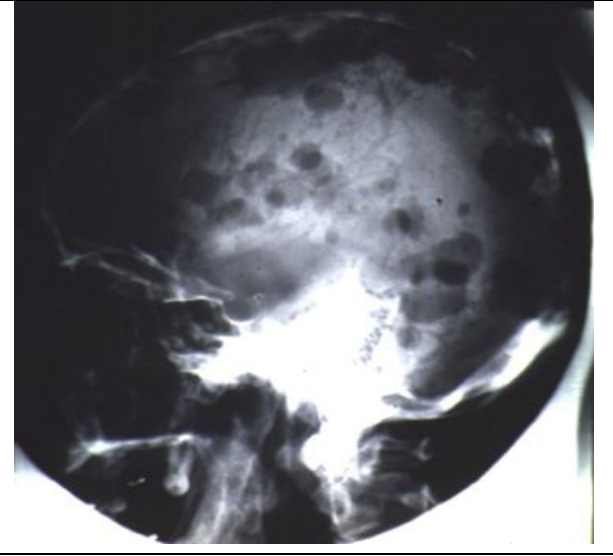
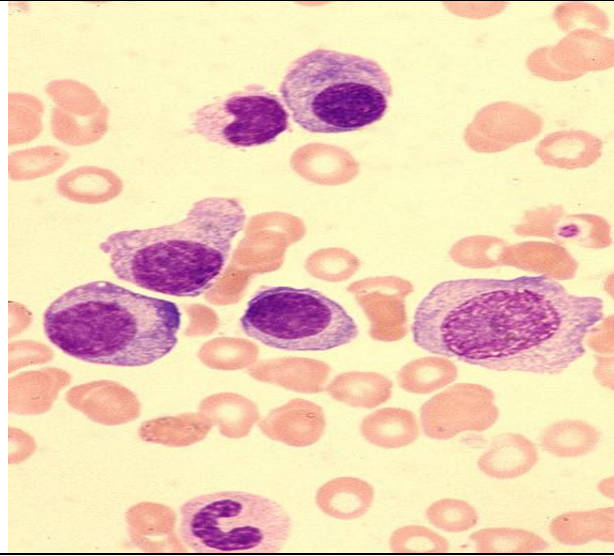
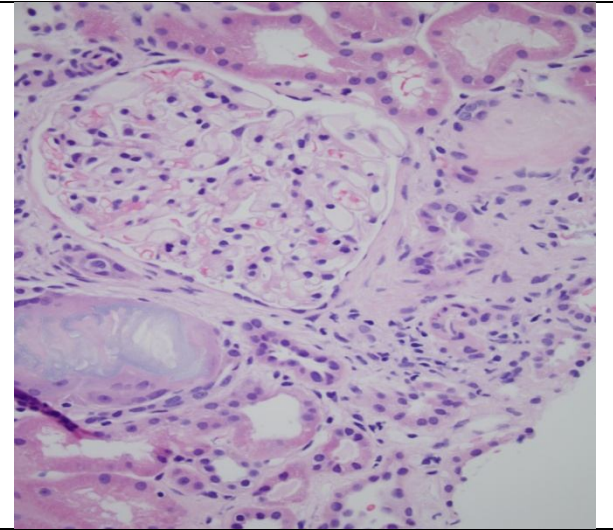
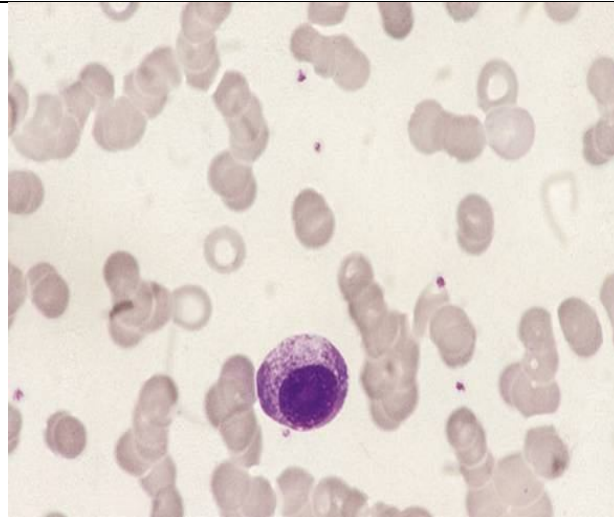
Deposition of amyloid

PERIPHERAL SMEAR

Plasma cell leukemia (rare)

Rouleaux formation

Pancytopenia (usually)



**WALDENSTROM'S
MACROGLOBULINEMIA**

PERIPHERAL SMEAR

Anemia
Pancytopenia (occasional)
Rouleaux formation
Visible agglutination
Positive cold-agglutinin test
Positive cryoglobulin

**MARROW ASPIRATE or LYMPH NODE
Bx**

Lymphoplasmacytic monoclonal B
cells

